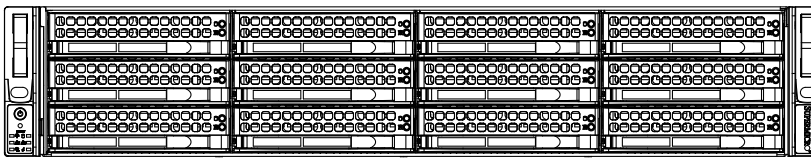
SUPERMICRO®

SUPERSERVER®

6028U SERIES



USER'S MANUAL

Revision 1.0

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Manual Revision 1.0
Release Date: November 03, 2014

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Preface

About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer. Installation and maintainance should be performed by experienced technicians only.

Please refer to the server specifications page on our Web site for updates on supported memory, processors and operating systems (www.supermicro.com).

Notes

For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: ftp://ftp.supermicro.com
- Product safety info: http://super-dev/about/policies/safety_information.cfm

If you have any questions, please contact our support team at:
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This manual may be periodically updated without notice. Please check the Supermicro Web site for possible updates to the manual revision level.

Warnings

Special attention should be given to the following symbols used in this manual.

Warning! Indicates important information given to prevent equipment/property damage or personal injury.

Warning! Indicates high voltage may be encountered when performing a procedure.

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Chapter 1

Introduction

1-1 Overview

The SuperServer 6028U Series is a high-end server comprised of two main subsystems: the SC829UAC(4)-R1K02 2U server chassis and the X10DRU-i+ dual processor serverboard. Refer to the Supermicro web site for information on operating systems that have been certified for use with the system (www.supermicro.com).

6028U Series Models				
System	**LAN Ports**	**NVMe**	**Ultra Riser Card**	**Backplane**
6028U-TR4+	Four GbE	no	AOC-2UR68-i4G	BPN-SAS3-826A
6028U-TRT+	Two 10GBase-T	no	AOC-2UR68-i2XT	BPN-SAS3-826A
6028U-TR4T+	Four 10GBase-T	no	AOC-2UR6-i4XT	BPN-SAS3-826A
6028U-TRTP+	Two 10G SFP+	no	AOC-2UR68-i2XS	BPN-SAS3-826A
6028U-TNRT+	Two 10GBase-T	4 port	AOC-2UR8N4-i2XT	BPN-SAS3-826A-N4
6028U-TNR4T+	Four 10GBase-T	4 port	AOC-2URN4-i4XT	BPN-SAS3-826A-N4

In addition to the above components, the server includes:

- Four 8-cm system cooling fans (FAN-0118L4)
- Two passive CPU heatsinks (SNK-P0058PSU)
- One air shroud (MCP-310-82908-0B)
- Twelve hard drive carriers (MCP-220-00075-0B)
- Riser Cards:
  One RSC-R1UW-E8R-O-P
  One RSC-R2UW-4E8-O-P
- One rackmount rail kit (MCP-290-00053-0N)

Note: For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: ftp://ftp.supermicro.com
- Product safety info: http://super-dev/about/policies/safety_information.cfm

For support, email support@supermicro.com.

1-2 Serverboard Features

At the heart of the SuperServer 6028U Series lies the X10DRU-i+, a dual processor serverboard based on the Intel PCH C612 chipset. Below are the main features of the serverboard. (See Figure 1-1 for a block diagram of the chipset.)

Processors

The serverboard supports single or dual Intel E5-2600 v3 Series processors in LGA2011 sockets (Socket R3). Refer to the Supermicro web site for a complete listing of supported processors (www.supermicro.com).

Memory

The serverboard has 24 memory sockets that can support up to 768 GB of ECC registered DDR4-1600/1333/1066/800 non-volatile RDIMM (Registered DIMMs) or 1536 GB of LRDIMM (Load-Reduced DIMMs) DDR4-2133/1866/1600/1333 memory. Please refer to Chapter 5 for installing memory.

Onboard Serial ATA

A SATA controller is integrated into the chipset to provide a ten-port SATA subsystem. Six of the ports are supported by the Intel PCH and four of the ports are supported by the Intel SCU. The SATA 3.0 ports are connected to the backplane by default. RAID 0, 1, 5 and 10 are supported by Intel RSTe Software RAID.

Rear I/O Ports

The rear I/O ports include one COM port, a VGA (monitor) port, two USB 3.0 ports and a dedicated IPMI LAN port. In addition, there are several possible networking configurations depending on the pre-installed Ultra riser card. See the table in Secion 1-1.

Graphics Controller

The serverboard features an integrated ASpeed 2400 BMC graphics chip.

1-3 Server Chassis Features

The 6028U Series is built upon the SC829UAC-R1K02 chassis or the SC829UAC4-R1K02 for NVMe models. Details and related procedures can be found in Chapter 6.The following is a general outline of the main features of the chassis.

System Power

The chassis features a redundant 1 KW power supply consisting of two hot-plug power modules. They have 80 Plus certification at Titanium Level (96%) high-efficiency. The system will continue to operate if one module fails or is replaced.

Hard Drives

The chassis supports up to twelve 3.5" hot-swap hard drives.

PCI Expansion Slots

All 6028U Series models include two WIO riser cards that support PCI-Express 3.0 expansion cards— four full size x8 cards and one low profile x8 card.

In addition, each system comes with an Ultra riser card to provide added features such as LAN ports and additional PCI expansion slots.

System	Ultra Riser Card	Ultra Riser Additional PCI-E 3.0 Support
6028U-TR4+	AOC-2UR68-i4G	One PCI-E x8 (Supermicro SAS only)
6028U-TRT+	AOC-2UR68-i2XT	One PCI-E x8 (in x16 slot)
6028U-TRTP+	AOC-2UR68-i2XS	One PCI-E x16
6028U-TR4T+	AOC-2UR6-i4XT	One PCI-E x8 (Supermicro SAS only) One PCI-E x16
6028U-TNRT+	AOC-2UR8N4-i2XT	One PCI-E x8 (Supermicro SAS only) One PCI-E x8 (in x16 slot)
6028U-TNR4T+	AOC-2URN4-i4XT	One PCI-E x8 (Supermicro SAS only)

Front Control Panel

The chassis front control panel provides system monitoring and power control. Status LEDs indicate system power, HDD activity, network activity, UID, and overheat and fan failure.

Cooling System

The chassis has an innovative cooling design that features four 8-cm high-performance fans. Fan speed can be determined by system temperature via IPMI. Each power supply module also includes a cooling fan.

NVMe

The NVM Express ports provide high-speed, low-latency connections directly from the CPU to NVMe Solid State drives (SSDs). This greatly increases SSD throughput and significantly reduces storage device latency by simplifying driver and software requirements resulting from the direct PCI-E interface between the CPU and the NVMe SSD drives.

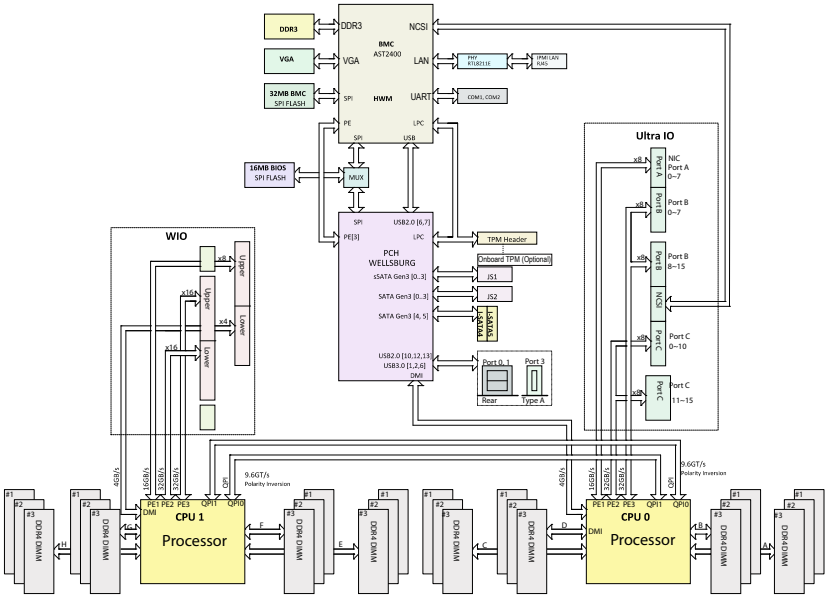

Figure 1-1. Intel PCH C612 Chipset: System Block Diagram

Note: This is a general block diagram. Please see Chapter 5 for details.

1-4 Contacting Supermicro

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Notes

Chapter 2

Server Installation

This chapter provides instructions for preparing and mounting your chassis in a rack.

2-1 Unpacking the System

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with the carrier who delivered it.

2-2 Preparing for Setup

Decide on a suitable location for the rack unit that will hold your chassis. It should be a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. A nearby grounded power outlet. is required

The box your chassis was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws to mount the system into the rack. Please read this chapter in its entirety before beginning the installation procedure.

Choosing a Setup Location

- Leave at least 25 inches clearance in front of the rack to open the front door completely.
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and access for servicing.
- It should be a restricted access location, such as a dedicated equipment room or a service closet.

2-3 Warnings and Precautions

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions

- Review the electrical and general safety precautions in Chapter 4.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug SAS drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

Warning! To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.
- Slide rail mounted equipment is not to be used as a shelf or a work space.

6-5 Installing the System into a Rack

This section provides information on installing the server into a rack unit with the rack rails provided. There are a variety of rack units on the market, so the assembly procedure may differ slightly. Refer to the installation instructions that came with your rack. **Note:** This rail will fit a rack between 26.5" and 36.4" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rail assemblies. Each assembly consists of three sections: An inner rail that secures directly to the chassis, an outer rail that secures to the rack, and a middle rail which extends from the outer rail. These assemblies are specifically designed for the left and right side of the chassis.

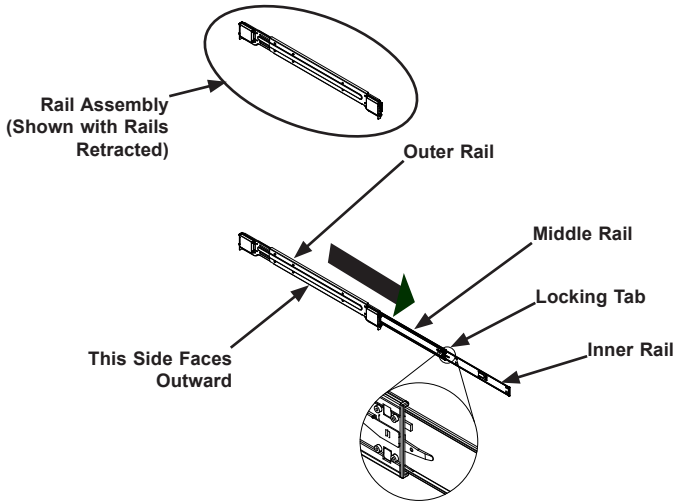


Figure 6-1. Identifying the Outer Rail, Middle Rail and Inner Rail
(Left Rail Assembly Shown)

Releasing the Inner Rail

Each inner rail has a locking latch. This latch prevents the server from coming completely out of the rack when when the chassis is pulled out for servicing.

To mount the rail onto the chassis, first release the inner rail from the outer rails.

Releasing Inner Rail from the Outer Rails

1. Pull the inner rail out of the outer rail until it is fully extended as illustrated below.
2. Press the locking tab down to release the inner rail.
3. Pull the inner rail all the way out.
4. Repeat for the other outer rail.

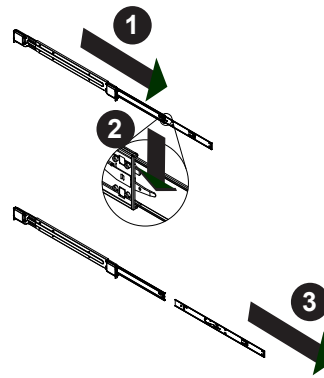


Figure 6-2. Extending and Releasing the Inner Rail

Installing the Inner Rails on the Chassis

Installing the Inner Rails

1. Identify the left and right inner rails. They are labeled.
2. Place the inner rail firmly against the side of the chassis, aligning the hooks on the side of the chassis with the holes in the inner rail.
3. Slide the inner rail forward toward the front of the chassis until the quick release bracket snaps into place, securing the rail to the chassis.
4. Optionally, you can further secure the inner rail to the chassis with a screw.
5. Repeat for the other inner rail.

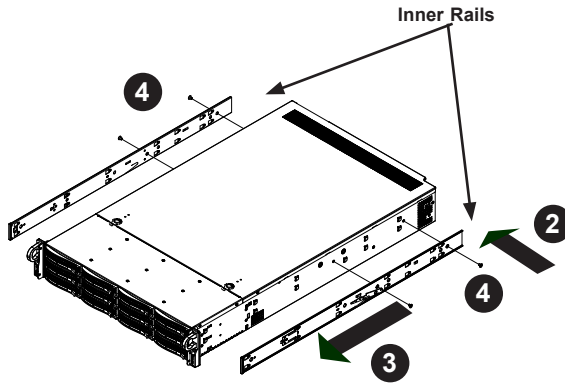


Figure 6-3. Installing the Inner Rails

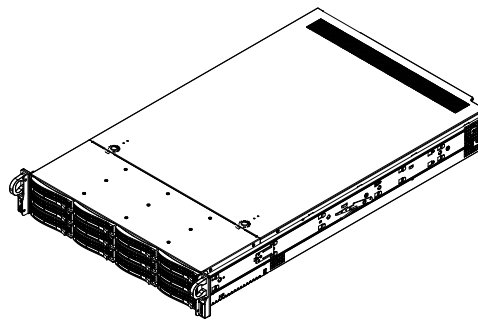


Figure 6-4. Inner Rails Installed on the Chassis

Installing the Outer Rails onto the Rack

Installing the Outer Rails

1. Press upward on the locking tab at the rear end of the middle rail.
2. Push the middle rail back into the outer rail.
3. Hang the hooks on the front of the outer rail onto the square holes on the front of the rack. If desired, use screws to secure the outer rails to the rack.
4. Pull out the rear of the outer rail, adjusting the length until it just fits within the posts of the rack.
5. Hang the hooks of the rear section of the outer rail onto the square holes on the rear of the rack. Take care that the proper holes are used so the rails are level. If desired, use screws to secure the rear of the outer rail to the rear of the rack.
6. Repeat for the other outer rail.

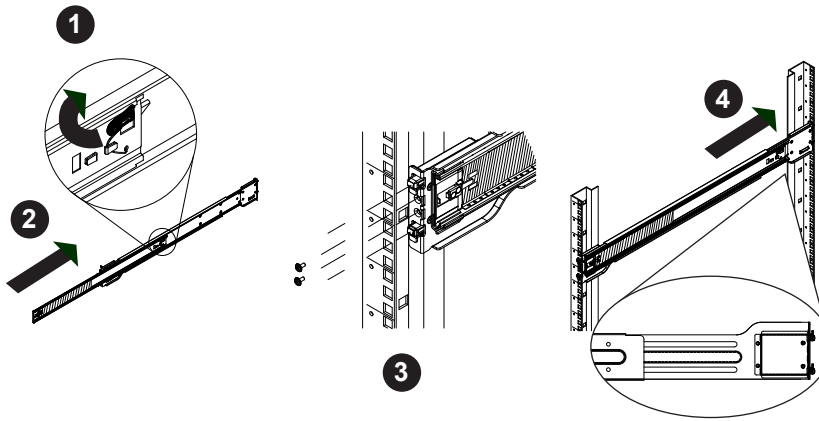


Figure 6-5. Extending and Mounting the Outer Rails

Stability hazard. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

Do not use a two post "telco" type rack.

Sliding the Chassis onto the Rack Rails

Warning: Mounting the system into the rack requires at least two people to support the chassis during installation. Please follow safety recommendations printed on the rails.

Installing the Chassis into a Rack

1. Extend the outer rails as illustrated above.
2. Align the inner rails of the chassis with the outer rails on the rack.
3. Slide the inner rails into the outer rails, keeping the pressure even on both sides. When the chassis has been pushed completely into the rack, it should click into the locked position.
4. Optional screws may be used to hold the front of the chassis to the rack.

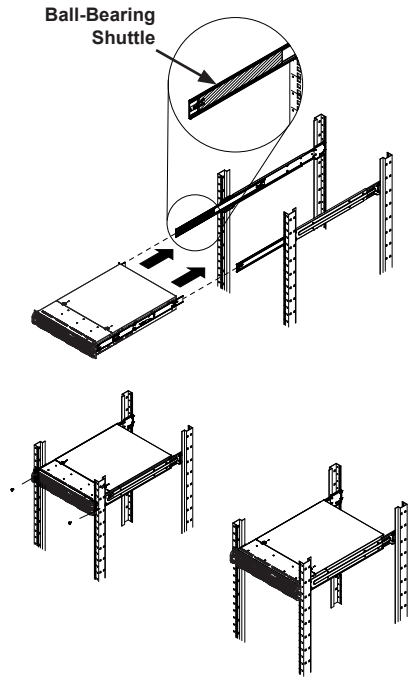


Figure 6-6. Installing into a Rack

Note: The figure above is for illustrative purposes only. Always install servers to the bottom of the rack first.

Caution: Do not pick up the server with the front handles. They are designed to pull the system from a rack only.

Chapter 3

System Interface

3-1 Overview

The server includes:

- A control panel on the front that houses power buttons and status monitoring lights
- Status lights on the externally accessible hard drives
- Status lights for the power supply visible from the back of the chassis

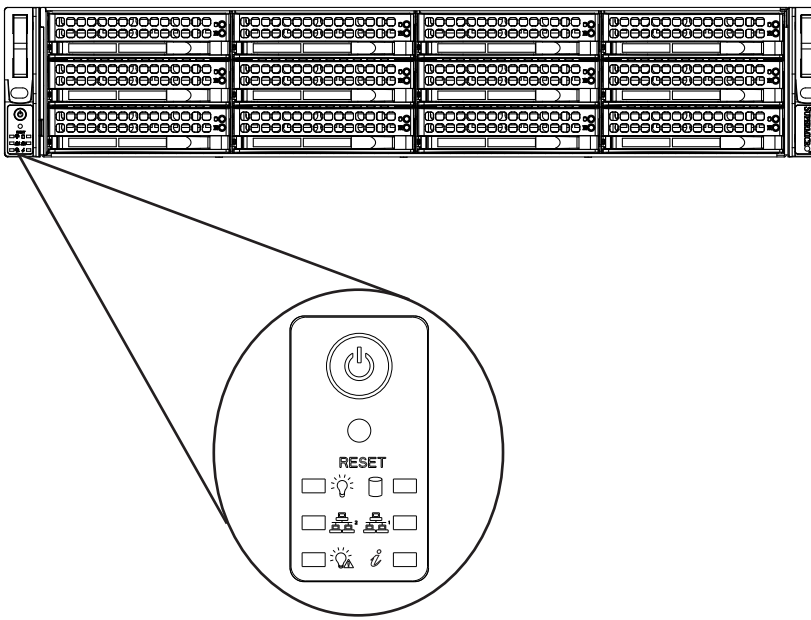


Figure 3-1. Control Panel

3-2 Control Panel Buttons

The chassis includes two push-buttons that control power to the system.

Power: The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.

Reset: The reset button is used to reboot the system.

3-3 Control Panel LEDs

There are six LEDs that provide status information about the system.

Power: Indicates power is being supplied to the system power supply units. This LED should normally be illuminated when the system is operating.

HDD: Indicates activity on the hard drive when flashing.

NIC2: Indicates network activity on GLAN2 when flashing.

NIC1: Indicates network activity on GLAN1 when flashing.

NIC1: Indicates network activity on GLAN1 when flashing.

Information LED: Alerts operator of several states, as noted in the table below.

Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occured. (This may be caused by cable congestion.)
Blinking red (1Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25Hz)	Power failure, check for a non-operational power supply.
Solid blue	Local UID has been activated. Use this function to locate the server in a rack mount environment.
Blinking blue	Remote UID is on. Use this function to identify the server from a remote location.

Overheating

There are several possible responses if the system overheats.

Overheat Temperature Setting

Some backplanes allow the overheat temperature to be set at 45, 50, or 55 by changing a jumper setting. For more information, consult the backplane user manual at www.supermicro.com. (Click Support, then the Manuals link.)

Responses

If the server overheats:

1. Use the LEDs to determine the nature of the overheating condition.

2. Confirm that the chassis covers are installed properly.

3. Check the routing of the cables and make sure all fans are present and operating normally.

4. Verify that the heatsinks are installed properly.

3-4 Drive Carrier LEDs

The chassis includes externally accessible SAS/SATA/NVMe drives. Each drive carrier displays two status LEDs on the front of the carrier.

	LED Color	Blinking Pattern	Behavior for Device
Activity LED	Blue	Solid On	SAS/NVMe drive installed
	Blue	Blinking	I/O activity
Status LED	Red	Solid On	Failed drive for SAS/SATA/NVMe with RSTe support
	Red	Blinking at 1 Hz	Rebuild drive for SAS/SATA/ NVMe with RSTe support
	Red	Blinking with two blinks and one stop at 1 Hz	Hot spare for SAS/SATA/NVMe with RSTe support
	Red	On for five seconds, then off	Power on for SAS/SATA/NVMe with RSTe support
	Red	Blinking at 4 Hz	Identify drive for SAS/SATA/ NVMe with RSTe support
	Green	Solid On	Safe to remove NVMe device
	Amber	Blinking at 1 Hz	Attention state—do not remove NVMe device

3-5 Power Supply LEDs

On the rear of the power supply module, an LED displays the status.

- **Solid Green**: When illuminated, indicates that the power supply is on.

- **Solid Amber**: When illuminated, indicates the power supply is plugged in and turned off, or the system is off but in an abnormal state.

- **Blinking Amber**: When blinking, this system power supply temperature has reached 63C. The system will automatically power-down when the power supply temperature reaches 70C and restart when the power supply temperature goes below 60C.

Chapter 4

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this chapter in its entirety before installing or configuring components in the Supermicro chassis. Some warnings may not apply for your system.

These warnings may also be found on our web site at www.supermicro.com/about/policies/safety_information.cfm.

Warning Definition

Warning!

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

警告の定義

この警告サインは危険を意味します。

人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、

電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .
قبل أن تعمل على أي معدات،كن على علم بالمخاطر الناجمة عن الدوائر
الكهربائية
وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور ترجمتها

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수 있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와 관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준 작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를

참조하십시오

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's en dient u op de hoogte te zijn van de standaard procedures om ongelukken te voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

Installation Instructions

Warning!

Read the installation instructions before connecting the system to the power source.

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告
将此系统连接电源前,请先阅读安装说明。

警告
將系統與電源連接前，請先閱讀安裝說明。

Warnung

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

¡Advertencia!

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Attention

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

.יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

Circuit Breaker

Warning!

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

サーキット・ブレーカー

この製品は、短絡（過電流）保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告
此产品的短路(过载电流)保护由建筑物的供电系统提供,确保短路保护设备的额定电流不大于250V,20A。

警告
此產品的短路(過載電流)保護由建築物的供電系統提供,確保短路保護設備的額定電流不大於250V,20A。

Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-250 V, 20 A

هذا المنتج يعتمد على معدات الحماية من الدوائر القصيرة التي تم تثبيتها في المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من: 20A, 250V

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw electrische installatie. Controleer of het beveiligde aparaat niet groter gedimensioneerd is dan 220V, 20A.

Power Disconnection Warning

Warning!

The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.

電源切断の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシー内部にアクセスするには、
システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。

警告

在你打开机箱并安装或移除内部器件前,必须将系统完全断电,并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de systéme.

אזהרה !

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.

يجب فصل النظام من جميع مصادر الطاقة وإزالة سلك الكهرباء من وحدة امداد الطاقة قبل
الوصول إلى المناطق الداخلية للهيكل لتثبيت أو إزالة مكونات الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 섀시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

Equipment Installation

Warning!

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

機器の設置

トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。

警告

只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告

只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

אזהרה !

צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتركيب واستبدال أو خدمة هذا الجهاز

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

Restricted Area

Warning!

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

警告

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

¡Advertencia!

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

Attention

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

אזור עם גישה מוגבלת

אזהרה !
יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת כלי אבטחה בלבד (מפתח, מנעול וכד').

تم تخصيص هذه الوحدة لتركيبها في مناطق محظورة .
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،
قفل ومفتاح أو أي وسيلة أخرى للالأمان

경고!

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치 및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang. Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

Battery Handling

Warning!

There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions

電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメーカーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従って処分して下さい。

警告
电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更换原有电池。请按制造商的说明处理废旧电池。

警告
電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有電池。請按照製造商的說明指示處理廢棄舊電池。

Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

אזהרה !
קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة استبدال البطارية بطريقة غير صحيحة فعليك استبدال البطارية
فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة
تخلص من البطاريات المستعملة وفقا لتعليمات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

Er is ontploffingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

Redundant Power Supplies (if applicable to your system)

Warning!

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

冗長電源装置
このユニットは複数の電源装置が接続されている場合があります。
ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告
此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告
此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein trom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

Attention

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

אם קיים יותר מספק אחד

אזהרה !
ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן את היחידה.

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة.
يجب إزالة كافة الاتصالات لعزل الوحدة عن الكهرباء

경고!

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이 장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

Waarschuwing

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

Backplane Voltage (if applicable to your system)

Warning!

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing.

バックプレーンの電圧
システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。
修理する際には注意ください。

警告
当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告
當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche Spannungen oder Energien auf. Vorsicht bei der Wartung.

¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso. Tenga cuidado cuando lo revise.

Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur le fond de panier. Prendre des précautions lors de la maintenance.

מתח בפנל האחורי

אזהרה !
קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך העבודה.

هناك خطر من التيار الكهربائي أوالطاقة الموجودة على اللوحة
عندما يكون النظام يعمل كن حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생합니다. 서비스 작업 시 주의하십시오.

Waarschuwing

Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

Comply with Local and National Electrical Codes

Warning!

Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠
機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalacion del equipo debe cumplir con las normas de electricidad locales y nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

תיאום חוקי החשמל הארצי

אזהרה !
התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

Product Disposal

Warning!

Ultimate disposal of this product should be handled according to all national laws and regulations.

製品の廃棄

この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要があります。

警告
本产品的废弃处理应根据所有国家的法律和规章进行。

警告
本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

סילוק המוצר

אזהרה !
סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.

عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

Hot Swap Fan Warning (if applicable to your system)

Warning!

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

ファン・ホットスワップの警告

シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。

警告
当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告
當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他物品太靠近風扇。

Warnung

Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände von den Öffnungen des Lüftergehäuses entfernt.

¡Advertencia!

Los ventiladores podran dar vuelta cuando usted quite ell montaje del ventilador del chasis. Mandtenga los dedos, los destornilladores y todos los objetos lejos de las aberturas del ventilador

Attention

Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres objets soient éloignés du logement du bloc ventilateur.

אזהרה !
כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאוררים עדיין עובדים. יש להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

من الممكن أن المراوح لا تزال تدور عند إزالة كتلة المروحة من الهيكل يجب إبقاء الأصابع ومفكات البراغي
وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة.

경고!

섀시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조림품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

Waarschuwing

Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers en eventuele andere voorwerpen uit de buurt van de openingen in de ventilatorbehuizing.

Power Cable and AC Adapter

Warning!

When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by Supermicro only.

電源コードとACアダプター

製品を設置する場合、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSEマークがコードに表記)を Supermicroが指定する製品以外に使用することを禁止しています。

警告

安装此产品时,请使用本身提供的或指定的连接线,电源线和电源适配器.使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品,电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

安裝此產品時,請使用本身提供的或指定的連接線,電源線和電源適配器.使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品,電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

Warnung

Bei der Installation des Produkts, die zur Verfügung gestellten oder benannt Anschlusskabel, Stromkabel und Netzteile. Verwendung anderer Kabel und Adapter kann zu einer Fehlfunktion oder ein Brand entstehen. Elektrische Geräte und Material Safety Law verbietet die Verwendung von UL-oder CSA-zertifizierte Kabel, UL oder CSA auf der Code für alle anderen elektrischen Geräte als Produkte von Supermicro nur bezeichnet gezeigt haben.

¡Advertencia!

Al instalar el producto, utilice los cables de conexión previstos o designados, los cables y adaptadores de CA. La utilización de otros cables y adaptadores podría ocasionar un mal funcionamiento o un incendio. Aparatos Eléctricos y la Ley de Seguridad del Material prohíbe el uso de UL o CSA cables certificados que tienen UL o CSA se muestra en el código de otros dispositivos eléctricos que los productos designados por Supermicro solamente.

Attention

Lors de l'installation du produit, utilisez les bables de connection fournis ou désigné. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et de loi sur la sécurité Matériel interdit l'utilisation de UL ou CSA câbles certifiés qui ont UL ou CSA indiqué sur le code pour tous les autres appareils électriques que les produits désignés par Supermicro seulement.

חשמליים ומתאמי AC

אזהרה !

כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים AC אשר נועדו וסופקו לשם כך. שימוש בכל כבל או מתאם אחר יכול לגרום לתקלה או קצר חשמלי. על פי חוקי שימוש במכשירי חשמל וחוקי בטיחות, קיים איסור להשתמש בכבלים המוסמכים ב- UL או ב- CSA (כשאר מופיע עליהם קוד של UL/CSA) עבור כל מוצר חשמלי אחר שלא צוין על ידי סופרמיקרו בלבד.

عند تركيب الجهاز يجب استخدام كابلات التوصيل،والكابلات الكهربائية ومحولات التيار المتردد
التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق.
تم توفيرها لك مع المنتج
الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات CSA أو UL معتمدة من قبل
لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro
(التي تحمل علامة UL/CSA)

경고!

제품을 설치할 때에는 제공되거나 지정된 연결케이블과 전원케이블, AC어댑터를 사용해야 합니다. 그 밖의 다른 케이블들이나 어댑터들은 고장 또는 화재의 원인이 될 수 있습니다. 전기용품안전법 (Electrical Appliance and Material Safety Law)은 슈퍼마이크로에서 지정한 제품들 외에는 그 밖의 다른 전기 장치들을 위한 UL또는 CSA에서 인증한 케이블(전선 위에 UL/CSA가 표시)들의 사용을 금지합니다.

Waarschuwing

Bij het installeren van het product, gebruik de meegeleverde of aangewezen kabels, stroomkabels en adapters. Het gebruik van andere kabels en adapters kan leiden tot een storing of een brand. Elektrisch apparaat en veiligheidsinformatiebladen wet verbiedt het gebruik van UL of CSA gecertificeerde kabels die UL of CSA die op de code voor andere elektrische apparaten dan de producten die door Supermicro alleen.

Notes

Chapter 5

Advanced Serverboard Setup

This chapter covers the steps required to install processors and heatsinks to the X10DRU-i+ serverboard, connect the data and power cables and install add-on cards. All serverboard jumpers and connections are described and a layout and quick reference chart are included in this chapter. Remember to close the chassis completely when you have finished working on the serverboard to protect and cool the system sufficiently.

5-1 Handling the Serverboard

Static electrical discharge can damage electronic components. To prevent damage to printed circuit boards, it is important to handle them very carefully (see Chapter 4). Also note that the size and weight of the serverboard can cause it to bend if handled improperly, which may result in damage. To prevent the serverboard from bending, keep one hand under the center of the board to support it when handling.

The following measures are generally sufficient to protect your equipment from static discharge.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.

Unpacking

The serverboard is shipped in antistatic packaging to avoid static damage. When unpacking the board, make sure the person handling it is static protected.

5-2 Installing the Processor and Heatsink

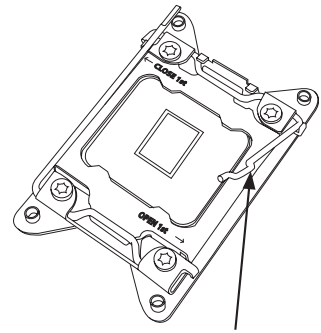
Notes:

- Always remove the power cord before adding, removing or changing a CPU.
- When receiving a serverboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- If you buy a CPU separately, use only an Intel-certified, multi-directional heatsink.
- Avoid placing direct pressure to the top of the processor package.
- Install the processor into the CPU socket before installing the heatsink.
- Refer to the Supermicro web site for updates on CPU support.

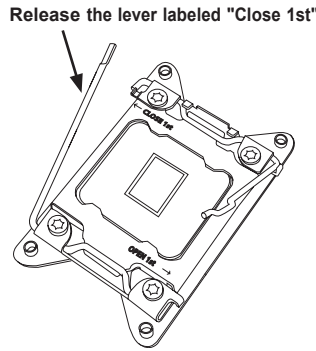
Installing an LGA 2011 Processor

Installing a CPU

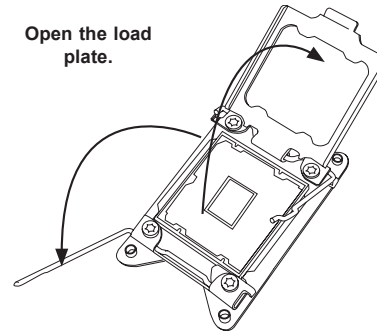
1. There are two levers on the LGA 2011 socket. First press and release the load lever labeled "Open 1st".



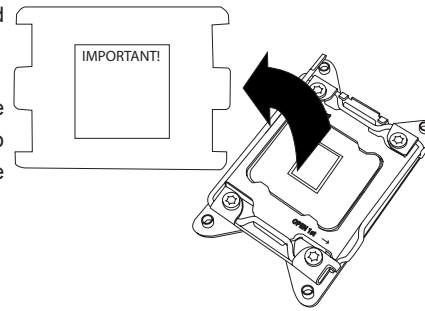
2. Press the second load lever labeled "Close 1st" to release the load plate from its locked position.



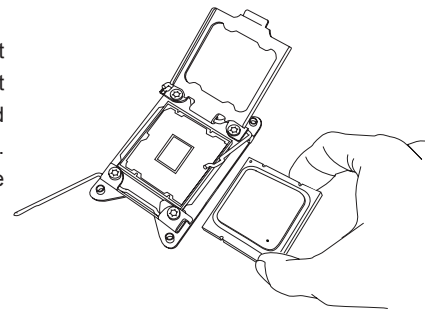
3. With the second lever fully retracted, gently push down on the "Open 1st" lever to loosen the load plate. Lift the load plate with your fingers to open it completely.



4. Pop the plastic cap marked "Warning" out of the load plate.
5. Holding the CPU carefully above the socket, orient the CPU so that all keys and edges will fit the socket.

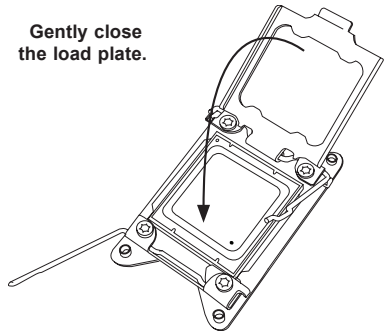


6. Carefully lower the CPU straight down into the socket. Do not move the CPU horizontally, and do not rub the pins of the socket. This may damage the CPU or the socket.

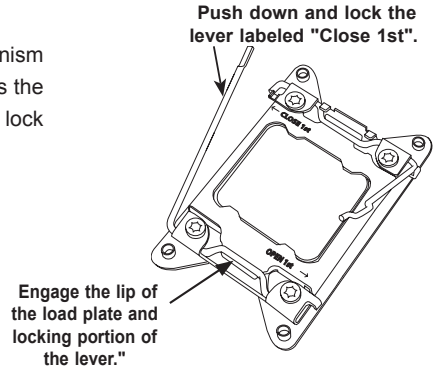


Caution: You can only install the CPU into the socket in one direction. Make sure that the CPU is properly inserted into the socket before closing the load plate. If it does not close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

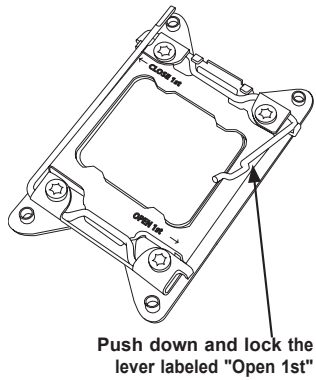
7. With the "Close 1st" lever fully retracted, gently close the load plate.



8. Make sure the locking mechanism on the "Close 1st" lever catches the lip of the load plate. Close and lock the "Close 1st" lever.



9. Close and lock the "Open 1st" lever.



Installing a CPU Heatsink

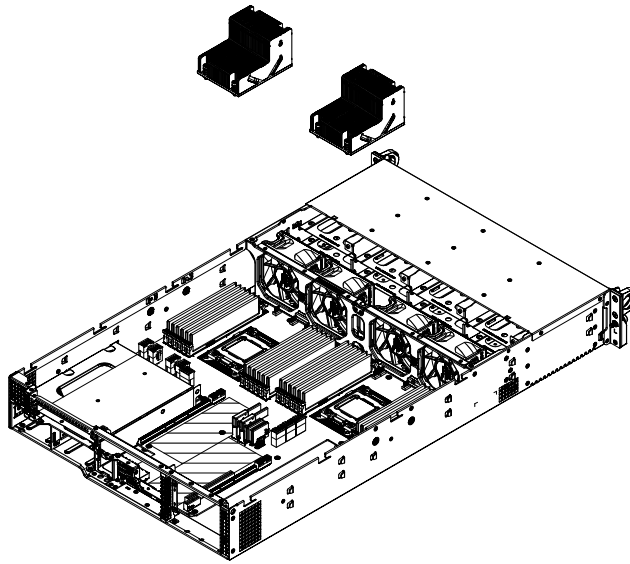


Figure 5-1. Heatsinks

Installing a Heatsink

1. Place the heatsink on top of the CPU so that the four mounting holes are aligned with those on the retention mechanism.

2. Screw in two diagonal screws (#1 and #2) until just snug—do not over-tighten and damage the CPU. Screw in the remaining screws.

3. Finish the installation by fully tightening all four screws.

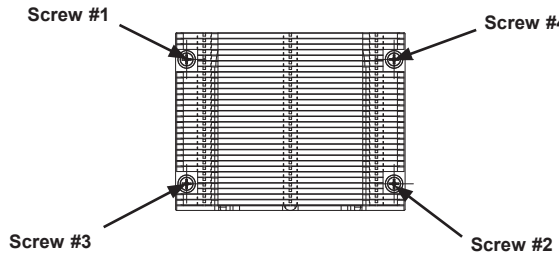


Figure 5-2. Heatsink Screw Order

Removing the Heatsink

Caution: We do not recommend removing the CPU or the heatsink. If you do need to remove the heatsink, please follow the instructions below to prevent damage to the CPU or the CPU socket.

1. Unplug the power cord from the power supply.
2. Unscrew and remove the heatsink screws in the opposite sequence shown in the picture above.
3. Hold the heatsink and gently wriggle it to loosen it from the CPU. (Do not use excessive force!)
4. Once the heatsink is loosened, remove it from the CPU.
5. Clean the surface of the CPU and the heatsink to get rid of the old thermal grease. Reapply the proper amount of thermal grease before re-installing the heatsink.

5-3 Connecting Cables

Now that the processors are installed, the next step is to connect the cables to the serverboard. These include the data (ribbon) cables for the peripherals and control panel and the power cables.

Connecting Data Cables

The cables used to transfer data from the peripheral devices have been carefully routed in preconfigured systems to prevent them from blocking the flow of cooling air that moves through the system from front to back. If you need to disconnect any of these cables, you should take care to reroute them as they were originally after reconnecting them and be aware of the pin 1 locations. If you are configuring the system, keep the airflow in mind when routing the cables.

Connecting Power Cables

The X10DRU-i+ has a 4-pin primary power supply connector designated JPW1 for connection to the power supply. Connect the appropriate connector from the power supply to JPW1 to supply power to the serverboard. See the Connector Definitions section in this chapter for power connector pin definitions.

Connecting the Control Panel

JF1 contains header pins for the front control panel connectors. All JF1 wires have been bundled into single keyed ribbon cable to simplify their connection. The red wire in the ribbon cable plugs into pin 1 of JF1. Connect the other end of the cable to the Control Panel printed circuit board, located just behind the system status LEDs in the chassis.

See the Connector Definitions section in this chapter for details and pin descriptions of JF1.

5-4 I/O Ports

The I/O ports at the rear of the server are pictured below.

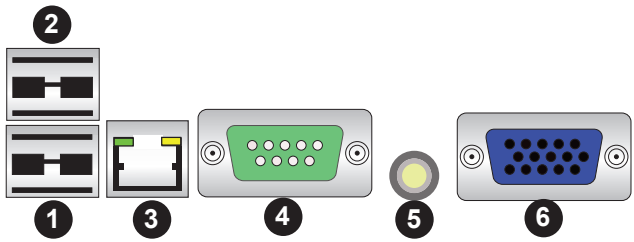


Figure 5-2. Rear Panel I/O Ports

1.	Back Panel USB 3.0 Port 0
2.	Back Panel USB 3.0 Port 1
3.	IPMI_dedicated LAN
4.	COM Port 1 (Turquoise)
5.	UID Button/UID LED (LED1)
6.	Back Panel VGA (Blue)

LAN Ports

The serverboard does not provide LAN ports directly. The server includes two or four LAN ports, depending on the server model, using a pre-installed Ultra riser card (expansion card). See Section 1-1 for details.

5-5 Installing Memory

For best performance, install memory modules of the same type and same speed in the slots as indicated in the tables on the following page. **Note:** Check the Supermicro web site for recommended memory modules.

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent any possible damage.

Installing DIMMs

1. Insert the desired number of DIMMs into the memory slots, starting with slot P1-DIMMA1.
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Insert each DIMM vertically into its slot. Pay attention to the notch along the bottom of the module to prevent inserting the DIMM module incorrectly..
4. Use two thumbs together to press on both ends of the module straight down into the slot until the module snaps into place.

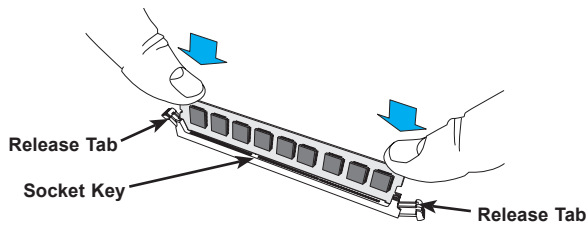


Figure 5-3. Installing DIMM into Slot

Memory Support

The server features 24 DIMM slots that can support up to 1536GB of Load Reduction (LRDIMM) or up to 768GB of Registered (RDIMM)/Non-volatile (NV-DIMM) ECC DDR4-2133/1866/1600/1333 SDRAM or LRDIMM type memory. For the latest memory updates, efer to the Supermicro website at www.supermicro.com/products/motherboard.

Processor and Memory Module Population Configuration

For memory to work properly, follow the tables below for memory installation.

Processors and their Corresponding Memory Modules												
CPU#	**Corresponding DIMM Modules**											
(CPU 1) P1-DIMM	A1	B1	C1	D1	A2	B2	C2	D2	A3	B3	C3	D3
(CPU 2) P2-DIMM	E1	F1	G1	H1	E2	F2	G2	H2	E3	F3	G3	H3

Caution: For the memory to work properly, please install DIMMs of the same type and speed. Mixing of DIMMs of different types or speeds is not allowed.

Populating DDR4 Memory Modules

Type	Ranks Per DIMM and Data Width	DIMM Capacity (GB)		Speed (MT/s); Voltage (V); Slot Per Channel (SPC) and DIMM Per Channel (DPC)					
				1 Slot Per Channel	2 Slots Per Channel		3 Slots Per Channel		
				1DPC	1DPC	2DPC	1DPC	2DPC	3DPC
		4Gb	8Gb	1.2V	1.2V	1.2V	1.2V	1.2V	1.2V
RDIMM	SRx4	8GB	16GB	2133	2133	1866	2133	1866	1600
RDIMM	SRx8	4GB	8GB	2133	2133	1866	2133	1866	1600
RDIMM	DRx8	8GB	16GB	2133	2133	1866	2133	1866	1600
RDIMM	DRx4	16GB	32GB	2133	2133	1866	2133	1866	1600
LRDIMM	QRx4	32GB	64GB	2133	2133	2133	2133	2133	1600

5-6 Serverboard Details

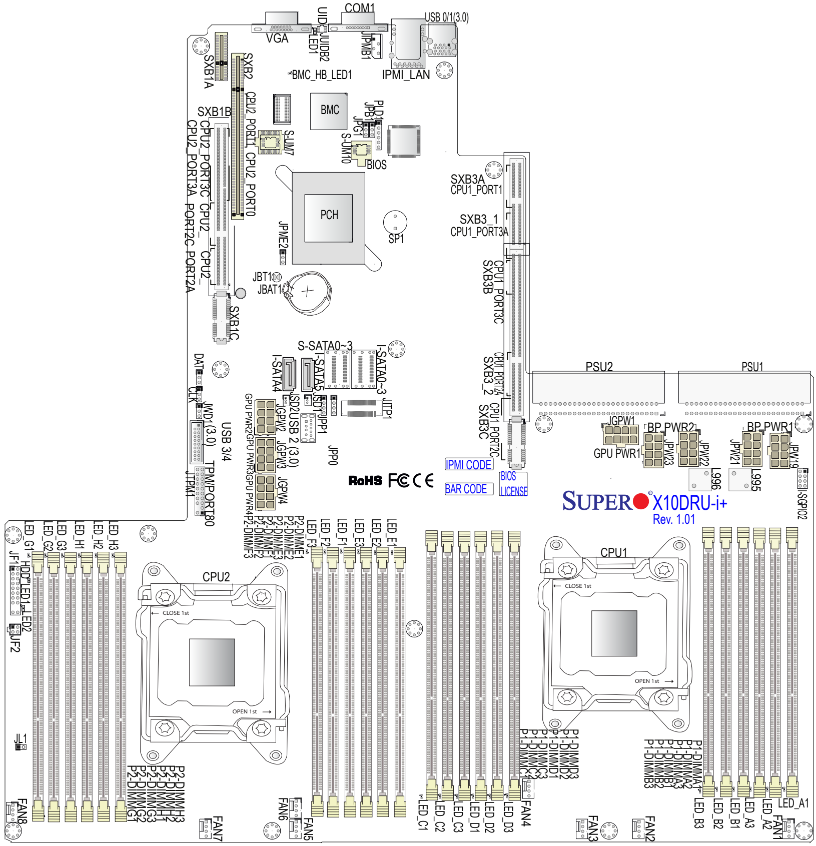

COM1
VGA
UID
LED1
JUIDB2
JIPMB1
USB 0/1(3.0)
IPMI_LAN
BMC_HB_LED1
SXB1A
SXB2
BMC
PLD1
JPB1
JPG1
S-UM10
S-UM7
BIOS
SXB1B
CPU2_PORT1
CPU2_PORT0
CPU2_PORT3C
CPU2_PORT3A
CPU2_PORT2C
CPU2_PORT2A
PCH
SP1
JPME2
JBT1
JBAT1
SXB1C
SXB3A
CPU1_PORT1
SXB3_1
CPU1_PORT3A
SXB3B
CPU1_PORT3C
SXB3_2
CPU1_PORT2A
SXB3C
CPU1_PORT2C
PSU2
PSU1
S-SATA0~3
I-SATA0~3
I-SATA4
I-SATA5
JSD1
JSD2
JITP1
JPP1
JPP0
DAT
CLK
JWD1
USB 3/4
USB 2 (3.0)
JGPW2
JGPW3
JGPW4
GPU PWR2
GPU PWR3
GPU PWR4
TPM/PORT80
JTPM1
RoHS
IPMI CODE
BAR CODE
BIOS LICENSE
JGPW1
GPU PWR1
BP PWR2
BP PWR1
JPW23
JPW22
JPW21
JPW19
L996
L995
I-SGPIO2
SUPER X10DRU-i+
Rev. 1.01
CPU1
CPU2
CLOSE 1st
OPEN 1st
LED_G1
LED_G2
LED_G3
LED_H1
LED_H2
LED_H3
LED_F3
LED_F2
LED_F1
LED_E3
LED_E2
LED_E1
P2-DIMME1
P2-DIMME2
P2-DIMME3
P2-DIMMF1
P2-DIMMF2
P2-DIMMF3
P2-DIMMH3
P2-DIMMH2
P2-DIMMH1
P2-DIMMG3
P2-DIMMG2
P2-DIMMG1
P1-DIMMD3
P1-DIMMD2
P1-DIMMD1
P1-DIMMC3
P1-DIMMC2
P1-DIMMC1
P1-DIMMA1
P1-DIMMA2
P1-DIMMA3
P1-DIMMB1
P1-DIMMB2
P1-DIMMB3
LED_C1
LED_C2
LED_C3
LED_D1
LED_D2
LED_D3
LED_B3
LED_B2
LED_B1
LED_A3
LED_A2
LED_A1
JF1
HDD_LED1
LED2
JF2
JL1
FAN1
FAN2
FAN3
FAN4
FAN5
FAN6
FAN7
FAN8

Figure 5-4. SUPER X10DRU-i+ Layout

Notes

- "■" indicates the location of "Pin 1".
- Jumpers/LEDs not indicated are for testing purposes only. Also, components that are not documented in this manual are reserved for internal use only.

Serverboard Quick Reference

Jumper	Description	Default Setting
JBT1	Clear Onboard CMOS Battery	See Section 5-8
JPB1	BMC Enable	Pins 1-2 (Enabled)
JPG1	VGA Enable	Pins 1-2 (Enabled)
JPME2	ME Manufacturing Mode Select	Pins 1-2 (Normal)
JPP0/JTAG SCAN	CPU1 JTAG Scan Enable	Pins 1-4 (Includes CPU2, 2-3: isolates CPU1)
JPP1/JTAG SCAN	CPU2 JTAG Scan Enable	Pins 1-4 (Includes CPU1, 2-3: isolates CPU2)
JWD1	Watch Dog Timer Enable	Pins 1-2 (Reset)

Connectors	Description
BP PWR1/2	Backplane power connectors
COM1	COM Port1
Fan1-8	CPU/System Fan Headers
GPU PWR1-PWR4	8-pin Power Connectors (1-4) for GPUs
JF1	Front Control Panel Header
JF2	4-pin Power Connector for LAN 3/4 LED
JL1	Chassis Intrusion Header
JIPMB1	4-pin External BMC I^2C Header (for an IPMI card)
JSD1/JSD2	SATA DOM (Device on Module) Power Connectors
JTPM1	TPM (Trusted Platform Module)/Port 80 Header
IPMI_LAN	Dedicated IPMI LAN Support (by the ASpeed controller)
PSU1/PSU2	Power Supply Unit 1/Unit 2 Headers
I-SATA0~3, 4, 5	SATA 3.0 Ports (Intel PCH)
S-SATA 0~3	SATA 3.0 Ports (Intel SCU)
SXB1A/1B/1C	Proprietary PCI-E Slot used for WIO-Left Devices (supported by CPU2)
SXB2	Proprietary PCI-E 3.0x8 Slot for WIO-Right Devices or Add-on Cards (supported by CPU2)
SXB3A/3B/3C	Proprietary PCI-E Slot for Ultra Riser Devices (supported by CPU1)
I-SGPIO2	Serial Link General Purpose I/O (SGPIO) header (for S-SATA ports)
USB 0/1 (3.0)	Rear USB 3.0 Ports
USB 2 (3.0)	Type A USB 3.0 Header
USB 3/4 (3.0)	Front Accessible USB 3.0 Headers
VGA	VGA Port

LED	Description (State)	Status
BMC_HB_LED1	BMC Heartbeat LED (Green: Blinking)	BMC Normal
LED1	Rear UID LED (Blue: On)	Unit Identified
HDD_LED1	HDD Heartbeat LED (Blinking)	HDD Normal
LED2	Onboard PWR LED (On)	System Power On
LED_A1-A3	Memory Fault Detect LED for DIMM slots A1-A3: (Red: On)	Memory Error(s)
LED_B1-B3	Memory Fault Detect LED for DIMM slots B1-B3: (Red: On)	Memory Error(s)
LED_C1-C3	Memory Fault Detect LED for DIMM slots C1-C3: (Red: On)	Memory Error(s)
LED_D1-D3	Memory Fault Detect LED for DIMM slots D1-D3: (Red: On)	Memory Error(s)
LED_F1-F3	Memory Fault Detect LED for DIMM slots F1-F3: (Red: On)	Memory Error(s)
LED_G1-G3	Memory Fault Detect LED for DIMM slots G1-G3: (Red: On)	Memory Error(s)
LED_H1-H3	Memory Fault Detect LED for DIMM slots H1-H3: (Red: On)	Memory Error(s)

5-7 Connector Definitions

Power Connectors

The X10DRU-i+ serverboard supports the following power configurations:

- Two proprietary main power supply units (PSU1: for CPU1 platform support, PSU2: for CPU2 platform support)
- Two backplane power-connector units (each unit comprised of two 8-pin power connectors) for backplane device use (BP PWR1: CPU1 platform support, BP PWR2: for CPU2 platform support)
- Four 8-pin power-connectors (GPU PWR1-4) used for GPU devices
- One 4-pin power connector (JF2) used for LAN 3/4 LED

Caution: To provide adequate power to your system and to avoid damaging the power supply or the serverboard, be sure to connect all power connectors mentioned above to the power supply when using the devices mentioned. Failure in doing so may void the manufacturer warranty on your power supply and serverboard.

8-pin GPU PWR Pin Definitions

Pins	Definition
1 through 4	Ground
5 through 8	+12V

Control Panel Connector

The connector for the control panel on the front of the chassis is JF1.

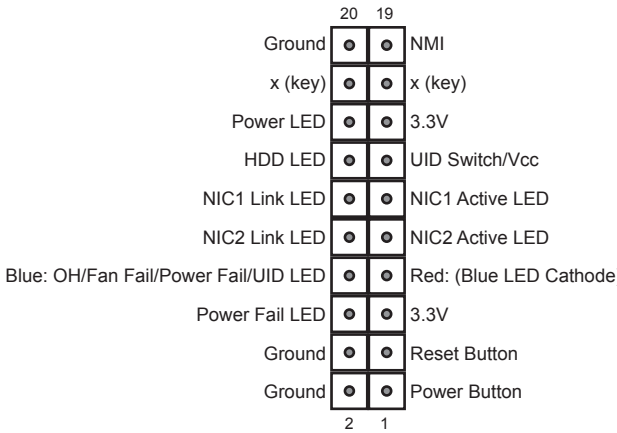


Figure 5-5. Front Control Panel Header Pins (JF1)

NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1. Refer to the table on the right for pin definitions.

NMI Button Pin Definitions (JF1)	
Pin#	Definition
19	Control
20	Ground

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	3.3V
16	PWR LED

HDD LED/UID Switch

The HDD LED/UID switch connections are located on pins 13/14 of JF1. Attach an LED cable to display HDD activity. Attach a cable to pin 13 to use UID button. See the table on the right for pin definitions.

HDD/UID Switch Pin Definitions (JF1)	
Pin#	Definition
13	UID Switch
14	HDD Active

NIC1/NIC2 LED

The NIC (Network Interface Controller) LED connections for GLAN port 1 are located on pins 11 and 12 of JF1, and the LED connection for GLAN Port 2 are on pins 9 and 10. Attach the NIC LED cables here to display network activity. Refer to the table on the right for pin definitions.

Note: The NIC LED connections for 10G_LAN Ports 3/4 is located on LED1.

GLAN 1/2 LED Pin Definitions (JF1)	
Pin#	Definition
9	NIC 2 Activity LED
10	NIC 2 Link LED
11	NIC 1 Activity LED
12	NIC 1 Link LED

Overheat (OH)/Fan Fail/PWR Fail/ UID LED

Connect an LED cable to pins 7 and 8 of Front Control Panel to use the Overheat/Fan Fail/Power Fail and UID LED connections. The Red LED on pin 8 provides warnings of overheat, fan failure or power failure. The Blue LED on pin 7 works as the front panel UID LED indicator. Refer to the table on the right for pin definitions.

OH/Fan Fail/ PWR Fail/Blue_ UID LED Pin Definitions (JF1)

Pin#	Definition
7	Blue_UID LED
8	OH/Fan Fail/Power Fail

OH/Fan Fail/PWR Fail LED Status (Red LED)

State	Definition
Off	Normal
On	Overheat
Flashing	Fan Fail

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1. Refer to the table on the right for pin definitions.

PWR Fail LED Pin Definitions (JF1)

Pin#	Definition
5	3.3V
6	PWR Supply Fail

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to the hardware reset switch on the computer case. Refer to the table on the right for pin definitions.

Reset Button Pin Definitions (JF1)

Pin#	Definition
3	Reset
4	Ground

Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (see the Power Button Mode setting in BIOS). To turn off the power when set to suspend mode, depress the button for at least 4 seconds. Refer to the table on the right for pin definitions.

Power Button Pin Definitions (JF1)

Pin#	Definition
1	Signal
2	Ground

Other Connectors

Fan Headers

The serverboard has eight system/CPU fan headers (Fan 1~Fan 8). All are 4-pin fans headers, which are backward compatible with traditional 3-pin fans. Fan speed control is available for 4-pin fans only. The fan speeds are controlled by IPMI. See the table on the right for pin definitions.

Fan Header Pin Definitions

Pin#	Definition
1	Ground
2	+12V
3	Tachometer
4	Pulse Width Modulation (PWM)

Chassis Intrusion

A Chassis Intrusion header is located at JL1. Attach an appropriate cable from the chassis to inform you of a chassis intrusion when the chassis is opened.

Chassis Intrusion Pin Definitions

Pin#	Definition
1	Intrusion Input
2	Ground

Internal Speaker

The Internal Speaker, located at SP1, can be used to provide audible indications for various beep codes. See the table on the right for pin definitions.

Internal Speaker Pin Definition

Pin#		Definitions
Pin 1	Pos. (+)	Beep In
Pin 2	Neg. (-)	Alarm Speaker

TPM Header/Port 80

A Trusted Platform Module/Port 80 header is located at JTPM1 to provide TPM support and Port 80 connection. Use this header to enhance system performance and data security. See the table on the right for pin definitions.

TPM/Port 80 Header Pin Definitions

Pin #	Definition	Pin #	Definition
1	LCLK	2	GND
3	LFRAME#	4	<(KEY)>
5	LRESET#	6	+5V (X)
7	LAD 3	8	LAD 2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SMB_CLK4	14	SMB_DAT4
15	+3V_DUAL	16	SERIRQ
17	GND	18	CLKRUN# (X)
19	LPCPD#	20	LDRQ# (X)

I-SGPIO2 Header

A Serial-Link General Purpose Input/ Output header (I-SGPIO2) supports onboard I-SATA 4/5. See the table on the right for pin definitions.

I-SGPIO Pin Definitions

Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	Data
5	Load	6	Ground
7	Clock	8	N

NC = No Connection

DOM Power Connectors

Two power connectors for SATA DOM (Disk On Module) devices are located at JSD1 and JSD2. These connectors are used with Supermciro SuperDOMs to provide backward-compatible power support to non-Supermicro SATADOMs that require external power supply.

DOM PWR Pin Definitions

Pin#	Definition
1	+5V
2	Ground
3	Ground

Unit Identifier Buttons/UID LED Indicators

A rear unit identifier button (JUIDB2) is located next to the COM port. The connection for the front UID button is located on pin 13 of JF1. The rear UID LED (LED1) is located next to the rear UID button, and the front UID LED connection is located on pin 7 of JF1. When you press the rear UID button, both front and rear UID LED indicators will be turned on. Press the UID button again to turn off the LEDs. The UID indicators provide easy identification of a system unit that may be in need of service.

Note: UID can also be triggered via IPMI. For more information on IPMI, please refer to the IPMI User's Guide posted on our website.

UID Button

Pin#	Definition
1	Ground
2	Ground
3	Button In
4	Button In

UID LED Status

Color/State	Status
Blue: On	Unit Identified

Universal Serial Bus (USB)

Two USB 3.0 ports (USB 0/1) are located on the rear I/O panel. A Type A USB connector (USB 2), and a USB header with two USB connections (USB 3/4) provide onboard three USB 3.0 connections for front access (cables not included). See the tables below for pin definitions.

USB 3.0 Port (USB0/1, 2) Pin Definitions

Pin#	Definition	Pin#	Definition
1	+5V	5	+5V
2	USB_PN1	6	USB_PN0
3	USB_PP1	7	USB_PP0
4	Ground	8	Ground

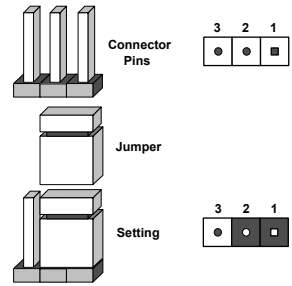
USB 3.0 Header (USB 3/4) Pin Definitions

Pin#	Description	Pin#	Description
1	USB3.0_Front_VCC		
2	USB3_RE_RXN6	19	USB3.0_Front_VCC
3	USB3_RE_RXP6	18	USB3_RE_RXN5
4	Ground	17	USB3_RE_RXP5
5	USB3_RE_TXN6	16	Ground
6	USB3_RE_TXP6	15	USB3_RE_TXN5
7	Ground	14	USB3_RE_TXP5
8	USB2_N8	13	Ground
9	USB2_P8	12	USB2_N9
10	Ground	11	USB2_P9

5-8 Jumper Settings

Explanation of Jumpers

To modify the operation of the serverboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the diagram at right for an example of jumping pins 1 and 2. Refer to the serverboard layout page for jumper locations.



Note: On two-pin jumpers, "Closed" means the jumper is on and "Open" means the jumper is off the pins.

CMOS Clear

JBT1 is used to clear CMOS and will also clear any passwords. Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To clear CMOS

1. First power down the system and unplug the power cord(s).
2. With the power disconnected, short the CMOS pads with a metal object such as a small screwdriver.
3. Remove the screwdriver (or shorting device).
4. Reconnect the power cord(s) and power on the system.

Note: *Do not use the PW_ON connector to clear CMOS.*

VGA Enable/Disable

JPG1 allows you to enable or disable the onboard VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings. The default setting is enabled.

VGA Enable/Disable Jumper Settings

Jumper Setting	Definition
Pins 1-2	Enabled
Pins 2-3	Disabled

Watch Dog Enable/Disable

JWD1 controls the Watch Dog function. Watch Dog is a system monitor that can reboot the system when a software application "hangs". Pins 1-2 will cause WD to reset the system if an application hangs. Pins 2-3 will generate a non-maskable interrupt signal for the application that has hung. See the table on the right for jumper settings. Watch Dog must also be enabled in BIOS.

Watch Dog Jumper Settings

Jumper Setting	Definition
Pins 1-2	Reset
Pins 2-3	NMI
Open	Disabled

BMC Enable

Jumper JPB1 allows you to enable the embedded onboard BMC (Baseboard Management) controller to provide IPMI 2.0 support on the serverboard. See the table on the right for jumper settings.

BMC Enable Jumper Settings

Jumper Setting	Definition
Pins 1-2	BMC Enable
Pins 2-3	Normal

ME Manufacturing Mode Select

Close pin 2 and pin 3 of jumper JPME2 to bypass SPI flash security and force the system to operate in the Manufacturer (ME) mode, allowing the user to flash the system firmware from a host server for system setting modifications. See the table on the right for jumper settings.

ME Mode Select Jumper Settings

Jumper Setting	Definition
Pins 1-2	Normal
Pins 2-3	Manufacture Mode

5-9 Onboard Indicators

IPMI Dedicated LAN LEDs

A dedicated IPMI LAN port is located on the rear I/O panel. The amber LED on the right indicates activity, while the LED on the left indicates the speed of the connection. See the tables at right for more information.

IPMI LAN Activity Indicator LED Settings

Color	Status	Definition
Amber	Flashing	Active

IPMI LAN Speed LED

LED Color	Definition
Off	10 Mbps, or No Connection
Green	100 Mbps
Amber	1 Gbps

HDD Heartbeat LED

An HDD heartbeat LED is located next to the JF1 header. When this green LED is blinking, HDD devices are functioning normally. See the table at right for more information.

HDD Heartbeat LED States

Color/State	Definition
Green: Blinking	HDD: Normal

Onboard Power LED

An Onboard Power LED is located at LE2 on the serverboard. When this LED is on, the system is on. Be sure to turn off the system and unplug the power cord before removing or installing components. See the tables at right for more information.

Onboard PWR LED Indicator LED States

LED Color	Definition
Off	System Off (PWR cable not connected)
Green	System On
Green: Flashing Quickly	ACPI S1 State

BMC Heartbeat LED

A BMC Heartbeat LED is located at BMC_HB_LED1. When this LED is blinking, BMC is functioning normally.

BMC Heartbeat LED Status

Color/State	Definition
Green: Blinking	BMC: Normal

5-10 SATA Ports

Ten SATA 3.0 ports are located on the serverboard. Six ports (I-SATA 0~3, 4, 5) are supported by the Intel PCH C612. I-SATA 4 and I-SATA 5 also support self-powered Supermcro SuperDOM (Device-on-Module) devices or any 3rd-party SATA DOM devices that use external power via JSD1 and JSD2. The other four SATA ports (S-SATA 0~3) are supported by the Intel SCU.

5-11 Installing Software

The Supermicro ftp site contains drivers and utilities for your system at ftp://ftp.supermicro.com. Some of these must be installed, such as the chipset driver.

After accessing the ftp site, go into the CDR_Images directory and locate the ISO file for your serverboard. Download this file to create a CD/DVD of the drivers and utilities it contains. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro Website at http://www.supermicro.com/products/. Find the product page for your serverboard here, where you may download individual drivers and utilities.

After creating a CD/DVD with the ISO files, insert the disk into the CD/DVD drive on your system and the display shown in Figure 5-6 should appear.

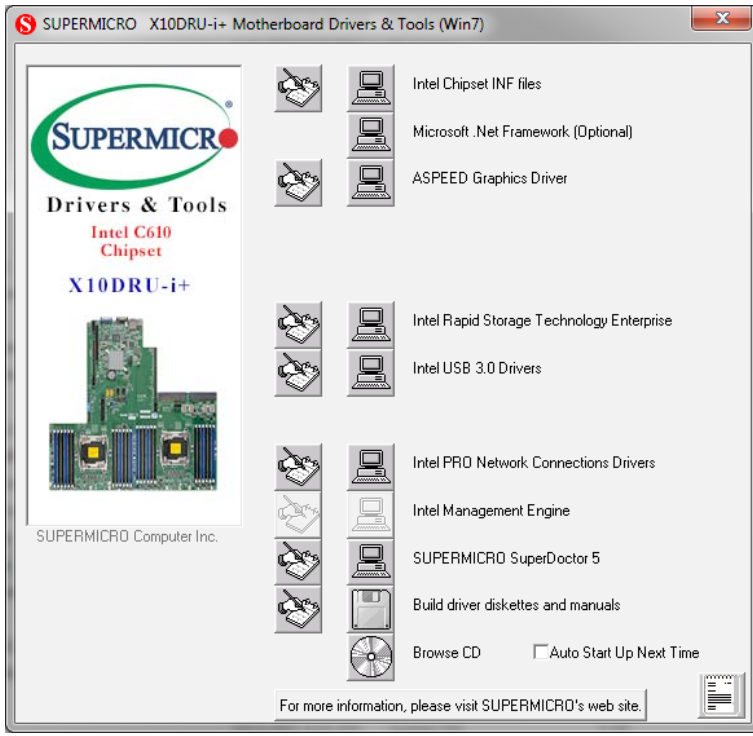


Figure 5-6. Driver Installation Display Screen

Note: Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. **After installing each item, you must re-boot the system before moving on to the next item on the list.** The bottom icon with a CD on it allows you to view the entire contents.

SuperDoctor® 5

The Supermicro SuperDoctor 5 is a hardware and operating system services monitoring program that functions in a command-line or web-based interface in Windows and Linux operating systems. The program monitors system health information such as CPU temperature, system voltages, system power consumption, fan speed, and provides alerts via email or Simple Network Management Protocol (SNMP).

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or IPMI. SD5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

Note: The default User Name and Password for SuperDoctor 5 is ADMIN/ADMIN.

Figure 5-7. SuperDoctor 5 Interface Display Screen (Health Information)

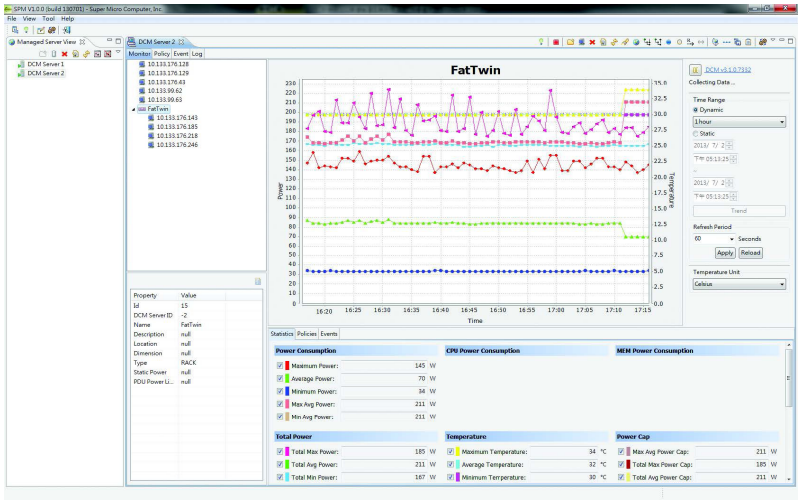


Figure 5-8. SuperDoctor 5 Interface Display Screen (Remote Control)

Note: The SuperDoctor 5 program and User's Manual can be downloaded from the Supermicro web site at http://www.supermicro.com/products/nfo/sms_sd5.cfm. For Linux, we recommend that you use the SuperDoctor II application instead.

5-12 Onboard Battery

Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

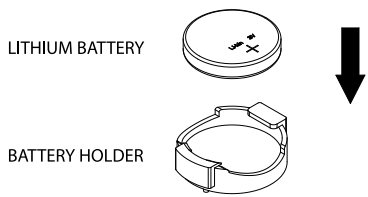


Figure 5-9. Installing the Onboard Battery

Chapter 6

Advanced Chassis Setup

This chapter covers the steps required to install components and perform maintenance on the chassis. For component installation, follow the steps in the order given to eliminate the most common problems encountered. If some steps are unnecessary, skip ahead to the next step.

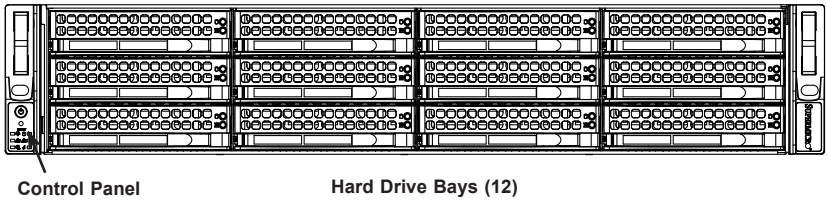
Tools Required: The only tool you will need to install components and perform maintenance is a Philips screwdriver.

6-1 Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from ESD damage.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing any board from its antistatic bag.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the serverboard, add-on cards and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.



Logical Drive Configuration			
HDD2	HDD5	HDD/NVMe	HDD/NVMe
HDD1	HDD4	HDD7	HDD/NVMe
HDD0	HDD3	HDD6	HDD/NVMe

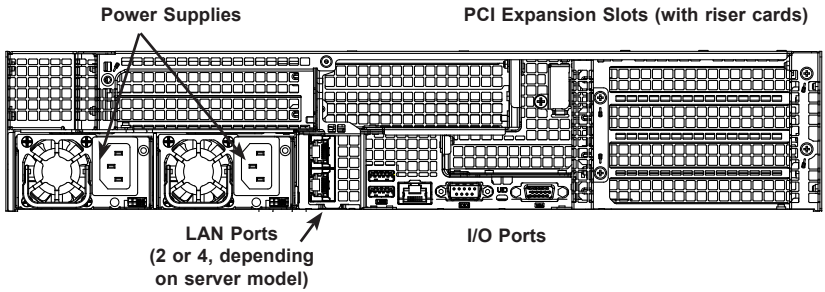


Figure 6-1. Chassis Front and Rear Views

6-2 Control Panel

The control panel (located on the front of the chassis) must be connected to the JF1 connector on the serverboard to provide you with system status indicators. These wires have been bundled together as a ribbon cable to simplify the connection. Connect the cable from JF1 on the serverboard to the appropriate header on the Control Panel printed circuit board. Make sure the red wire plugs into pin 1 on both connectors. Pull all excess cabling out of the airflow path.

The control panel LEDs inform you of system status. See "Chapter 3: System Interface" for details. Details on the JF1 header can be found in "Chapter 5: Advanced Serverboard Setup."

6-3 Removing the Chassis Cover

1. If rack mounted, first, grasp the two handles on either side and pull the system straight out until it locks (you will hear a "click").

2. Remove the two screws on each side of the cover, which secure the cover to the chassis.

3. Press the release tabs to remove the cover from the locked position. Press both tabs at the same time.

4. Once the top cover is released from the locked position, slide the cover toward the rear of the chassis.

5. Lift the cover off the chassis.

6. To remove the system from the rack completely, press the locking tabs in the chassis rails (push the right-side tab down and the left-side tab up) to continue to pull the system out past the locked position. See Figure 6-2

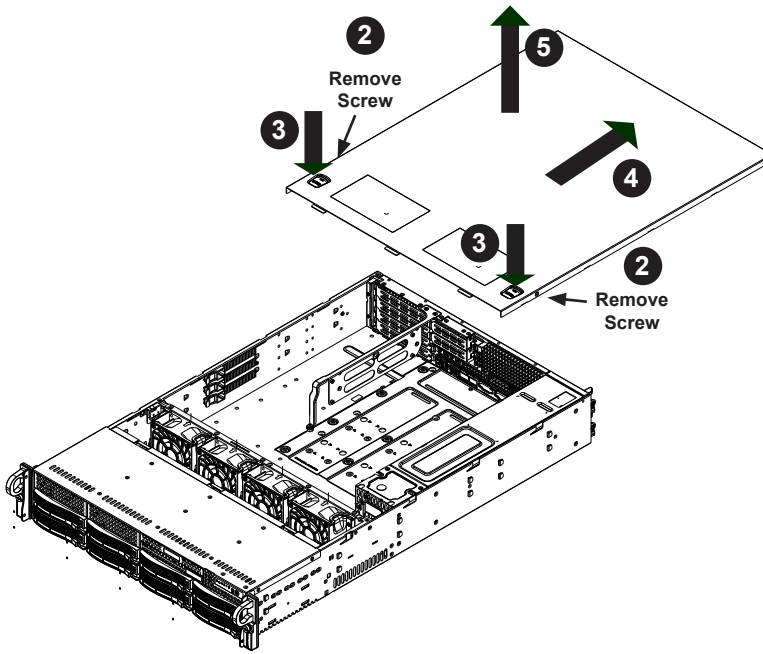


Figure 6-2. Accessing the Inside of the System

6-4 Hard Drive Installation

The SC829U chassis accepts twelve hot-swappable 3.5" hard drives. The hard drives are mounted in drive carriers to simplify their installation and removal from the chassis. System power may remain on when removing carriers with drives installed. These carriers also help promote proper airflow for the drive bays. For this reason, even empty carriers without drives installed must remain in the chassis.

Removing Hard Drive Carrier from the Chassis

1. Press the release button on the drive carrier. This extends the drive carrier handle.

2. Use the handle to pull the drive out of the chassis.

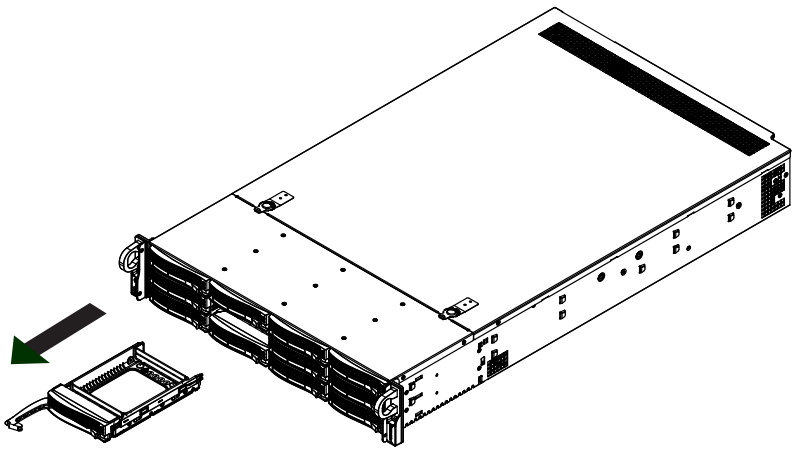


Figure 6-3. Removing a Drive from the Server

Installing a Hard Drive into a Drive Carrier

1. Remove the screws securing the dummy drive to the carrier.
2. Remove the dummy drive from the carrier.
3. Install a new drive into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier.
4. Secure the hard drive by tightening all six screws.
5. Replace the drive carrier into the chassis bay, making sure that the drive carrier handle is completely closed.

Caution: Except for short periods of time (swapping hard drives), do not operate the server with the hard drives removed from the bays.

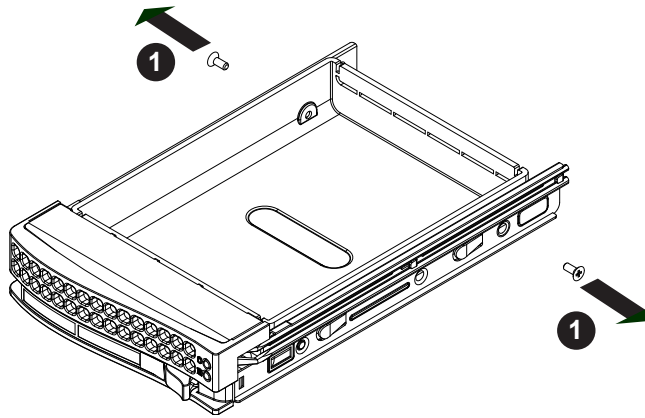


Figure 6-4. Removing a Dummy Drive from a Carrier

6. Install a new drive into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier.
7. Secure the hard drive by tightening all six screws.
8. Replace the drive carrier into the chassis bay, making sure that the drive carrier handle is completely closed.

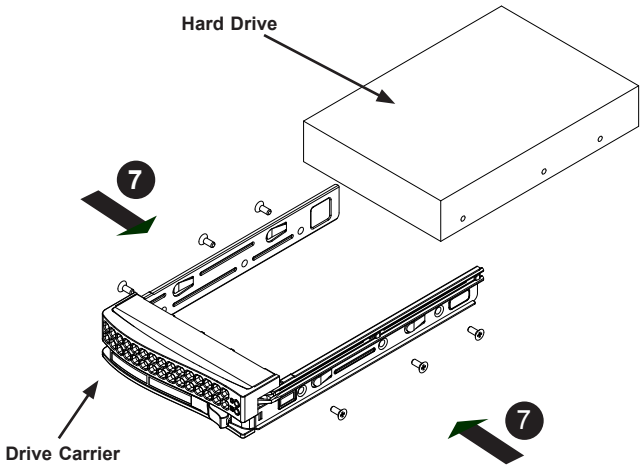


Figure 6-5. Installing a Hard Drive

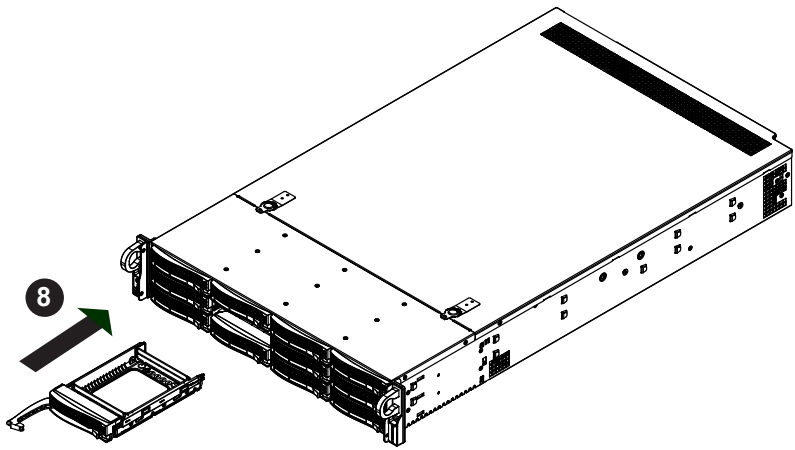


Figure 6-6. Installing a Carrier into its Bay

Caution: Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/storage.cfm

6-5 Adding PCI Expansion Cards

Riser cards on chassis brackets allow you to add PCI expansion cards. The total number of expansion cards depends on the model in the 6028U Series. (see "PCI Expansion Slots" in Section 1-3 and the table below). All expansion cards are PCI-Express 3.0. For all models:

- RSC-R2UW-4E8 supports four standard size PCI-E x8 expansion cards (5-8).
- RSC-R1UW-E8R supports one low profile x8 expansion card (4)

Other configurations are affected by the Ultra riser card.

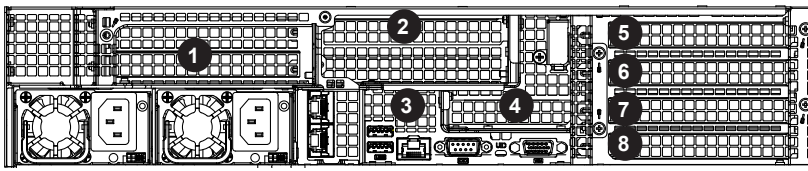


Figure 6-7. PCI Expansion Card Chassis Slots

Expansion Card Configurations			
Slot	**Mechanical**	**Electrical**	**In Models**
1	Double Width, full height, full length	x16 (CPU1)	All but TNRT+, TNR4T+
2	Double Width, full height, full length	x8 (CPU1)	All but TR4T+, TNR4T+
3	Internal Low Profile, Half Length	x8 (CPU1)	All models
4	Low Profile, Half Length	x8 (CPU2)	TR4+, TRT+, TRTP+
5	Full Height, full length	x8 (CPU2)	All models
6	Full Height, full length	x8 (CPU2)	All models
7	Full Height, full length	x8 (CPU2)	All models
8	Full Height, full length	x8 (CPU2)	All models

Full height = 4.2", Low profile = 2.5"
Full length = 10.5", Half length = 6.6"

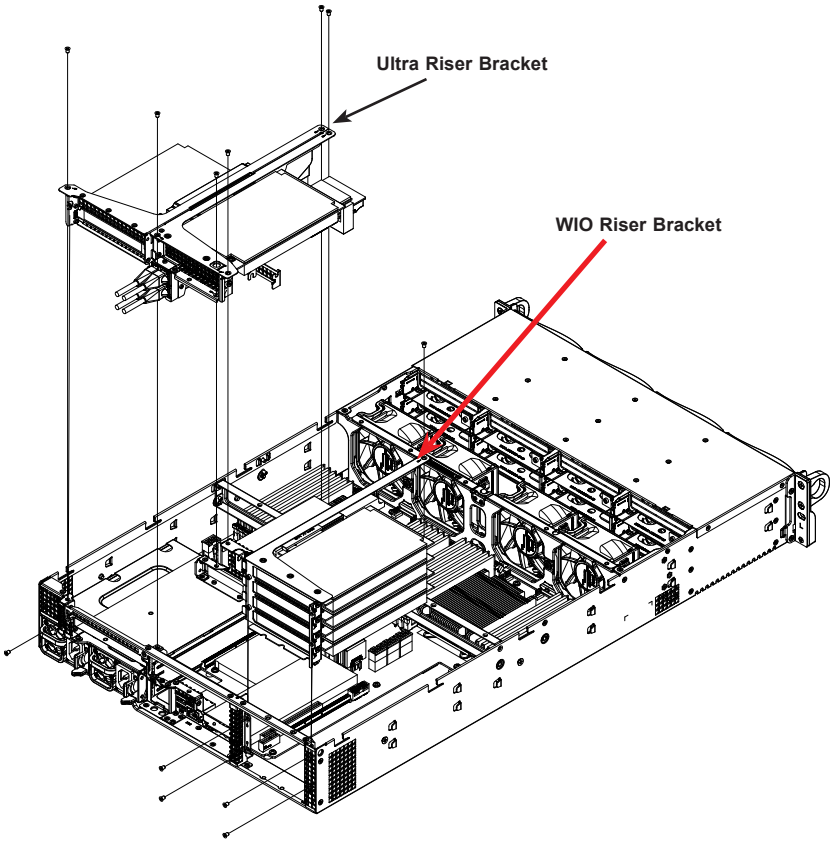


Figure 6-8. Expansion and Riser Cards—Rear View

Installing PCI Expansion Cards

1. Power down the system and remove the top chassis cover.
2. Remove the Ultra riser bracket, then remove the WIO bracket as pictured in Figures 6-8 and 6-9. Note the screwdriver icons imprinted in the chassis. They indicate which screws must be removed to remove the brackets.
3. Insert the expansion card(s) into the riser card slot(s).
4. Replace the riser card into the serverboard expansion slot while aligning the bracket into the chassis. Replace the securing screws.
5. Replace the chassis cover.

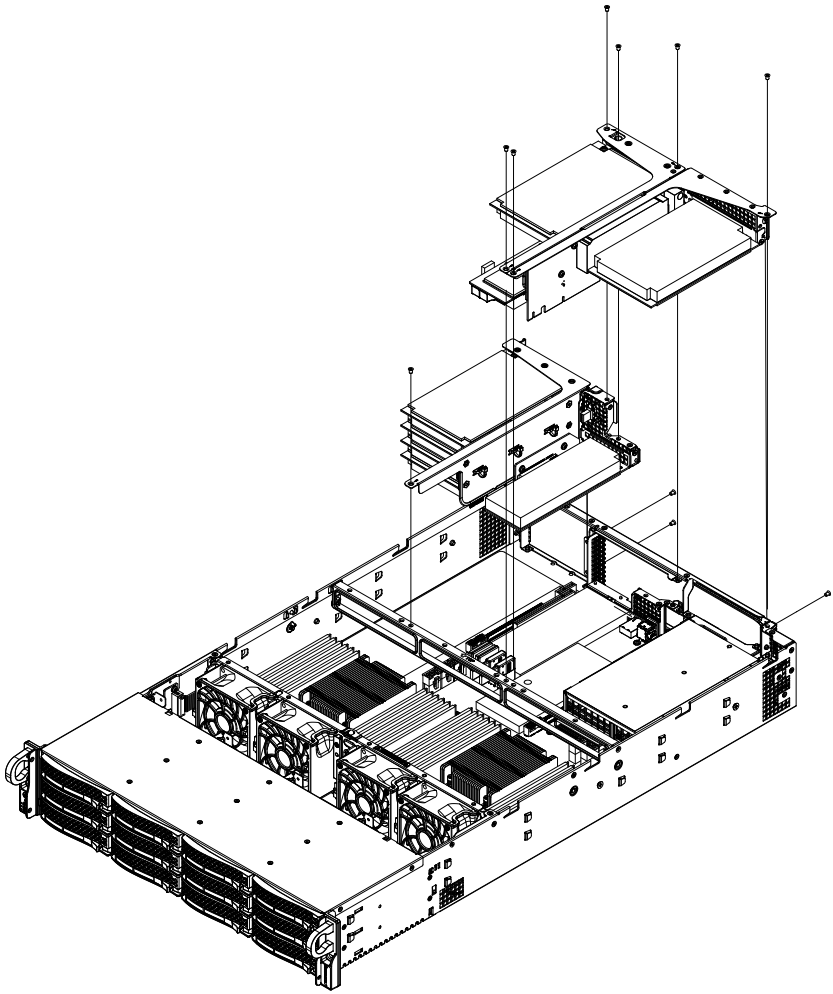


Figure 6-9. Expansion and Riser Cards—Front View

6-6 System Fans

The chassis contains four 8-cm high-performance fans.

Replacing System Fan

Fan speed is controlled by system temperature via IPMI. If a fan fails, the remaining fan will ramp up to full speed and the overheat/fan fail LED on the control panel will turn on. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan).

Remove the top chassis cover while the system is still running to determine which of the fans has failed. Then power down the system before replacing a fan. Removing the power cord(s) is also recommended as a safety precaution.

Replacing System Fans

1. After determining which fan has failed, turn off the system power.
2. Unplug the fan wiring from the serverboard and remove the failed fan.
3. Press the fan release tab to lift the failed fan from the chassis and pull it completely from the chassis.
4. Place the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans.
5. Power up the system and check that the fan is working properly before replacing the chassis cover.

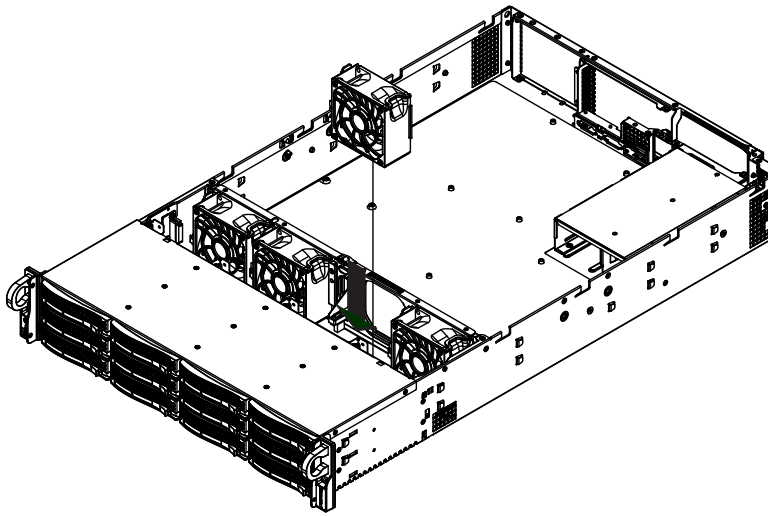


Figure 6-8. System Fans

Air Shroud

Cooling is also improved by installin the standard air shroud. Insert it over the CPUs.

6-7 Power Supply

The 6028U Series has a 1000 watt redundant hot-plug power supply consisting of two power modules. Each power supply module has an auto-switching capability, which enables it to automatically sense and operate at a 100V - 240V input voltage.

Replacing a Power Supply Module

If either of the two power supply modules fail, the other module will take the full load and allow the system to continue operation without interruption. The Power Fail LED will illuminate and remain on until the failed unit has been replaced. Replacement units can be ordered directly from Supermicro. The power supply units have a hot-plug capability, meaning you can replace the failed unit without powering down the system.

Replacing the Power Supply

1. First unplug the AC power cord from the failed power supply module.
2. Depress the release tab on the power supply module as illustrated.
3. Use the handle to pull the module straight out of the chassis.
4. Replace the failed hot-swap unit with another identical power supply unit.
5. Push the new power supply unit into the power bay until it clicks.
6. Plug the AC power cord back into the unit and power up the server.

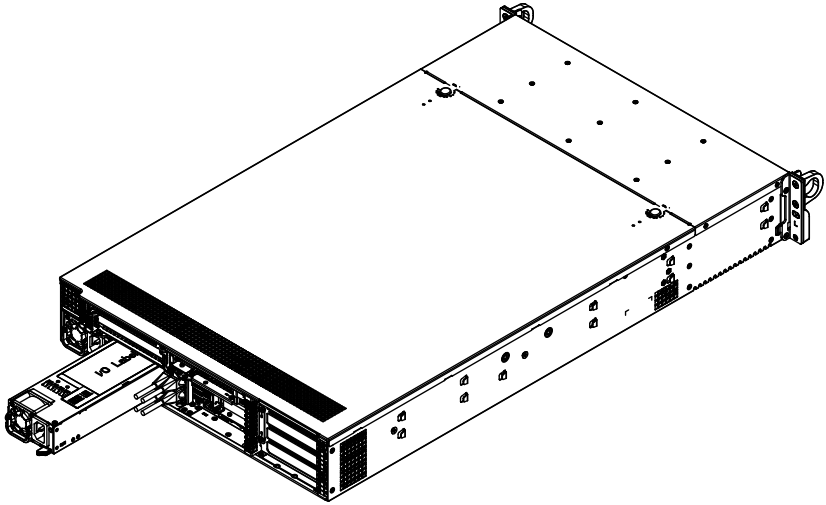


Figure 6-9. Removing/Replacing the Power Supply

Notes

Chapter 7

BIOS

7-1 Introduction

This chapter describes the AMI BIOS setup utility for the X10DRU-i+. It also provides the instructions on how to navigate the AMI BIOS setup utility screens. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated.

Starting BIOS Setup Utility

To enter the AMI BIOS setup utility screens, press the <Del> key while the system is booting up.

Note: In most cases, the <Del> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F3>, <F4>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for informational text. When an option is selected in the left frame, it is highlighted in white. Often informational text will accompany it.

Note: The AMI BIOS has default informational messages built in. The manufacturer retains the option to include, omit, or change any of these informational messages.

The AMI BIOS setup utility uses a key-based navigation system called "hot keys." Most of the AMI BIOS setup utility "hot keys" can be used at any time during setup navigation. These keys include <F3>, <F4>, <Enter>, <ESC>, arrow keys, etc.

Note 1: Options printed in **Bold** are default settings.

Note 2: <F3> is used to load optimal default settings. <F4> is used to save the settings and exit the setup utility.

How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS setup utility. This setup utility can be accessed by pressing <Delete> at the appropriate time during system boot.

Note: For AMI UEFI BIOS Recovery, please refer to the UEFI BIOS Recovery User Guide posted @ http://www.supermicro.com/support/manuals/.

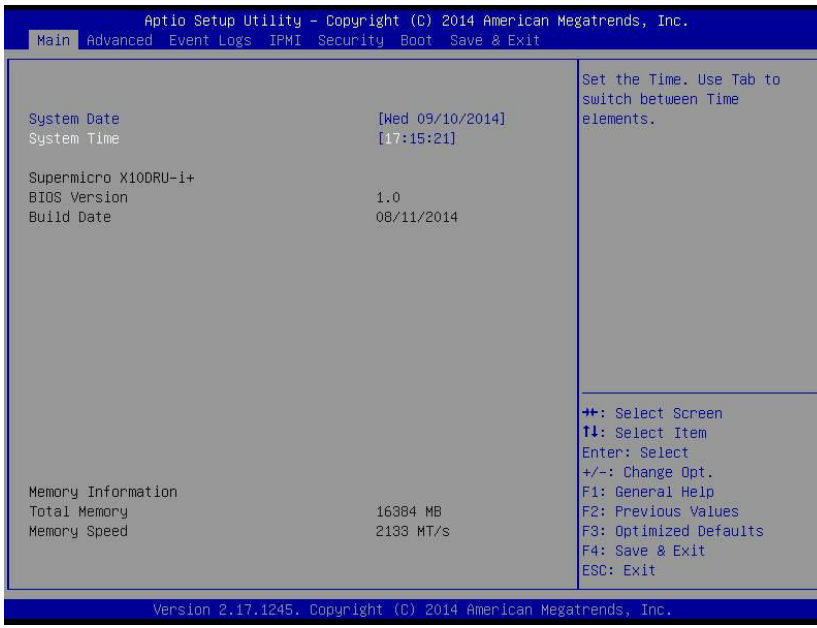
Starting the Setup Utility

Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS setup utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen below the copyright message.

Caution: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall the manufacturer be liable for direct, indirect, special, incidental, or consequential damage arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system while the BIOS is being updated to avoid possible boot failure.

7-2 Main Setup

When you first enter the AMI BIOS setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
Set the Time. Use Tab to switch between Time elements.
System Date [Wed 09/10/2014]
System Time [17:15:21]
Supermicro X10DRU-i+
BIOS Version 1.0
Build Date 08/11/2014
Memory Information
Total Memory 16384 MB
Memory Speed 2133 MT/s
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1245. Copyright (C) 2014 American Megatrends, Inc.

The AMI BIOS Main menu displays the following information:

System Date

Use this item to change the system date. Press the <Tab> key to move between fields. Enter new values through the keyboard and press <Enter>. The date must be entered in MM/DD/YYYY format.

System Time

Use this item to change the system time. Press the <Tab> key to move between fields. Enter new values through the keyboard and press <Enter>. The time is entered in HH:MM:SS format. The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.

Supermicro X10DRU-i+

BIOS Version

This item displays the version of the BIOS ROM used in this system.

Build Date

This item displays the date that the BIOS setup utility was built.

Memory Information

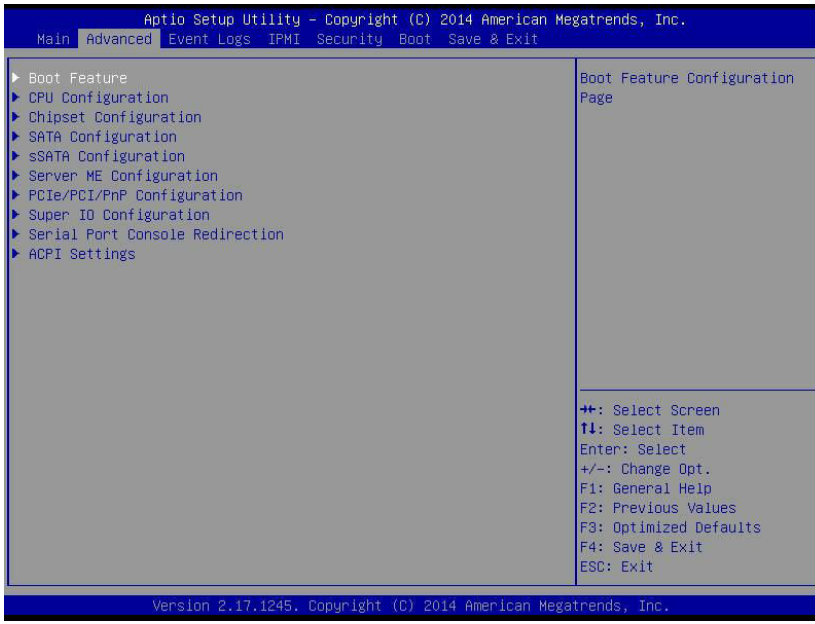
Total Memory

This item displays the amount of memory that is available in the system.

Memory Speed

This item displays the memory speed.

7-3 Advanced Setup Configurations



Select the Advanced tab to access the following submenu items.

▶Boot Features

Boot Feature

Quiet Boot

Use this item to select bootup screen display between POST messages and the OEM logo. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

AddOn ROM Display Mode

Use this item to set the display mode for the Option ROM. Select Keep Current to use the current AddOn ROM Display setting. Select Force BIOS to use the Option ROM display set by the system BIOS. The options are **Force BIOS** and Keep Current.

Bootup Num-Lock

Use this item to set the power-on state for the Numlock key. The options are Off and **On**.

Wait For 'F1' If Error

Select Enabled to force the system to wait until the 'F1' key is pressed when an error occurs. The options are Disabled and **Enabled**.

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Immediate, the BIOS ROM of the host adaptors will immediately capture Interrupt 19 at bootup and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Postponed, the BIOS ROM of the host adaptors will only capture Interrupt 19 during bootup from a legacy device. The options are **Immediate** and Postponed.

Re-try Boot

Select Legacy Boot for the BIOS to continuously attempt to boot from the legacy boot drive. Select EFI Boot for the BIOS to continuously attempt to boot from the EFI boot drive. The options are **Disabled**, Legacy Boot, and EFI Boot.

Power Configuration

Watch Dog Function

If enabled, the Watch Dog timer will allow the system to automatically reboot when a non-recoverable error that lasts for more than five minutes occurs. The options are Enabled and **Disabled.**

Power Button Function

If this feature is set to Instant Off, the system will power off immediately as soon as the user presses the power button. If this feature is set to 4 Seconds Override, the system will power off when the user presses the power button for 4 seconds or longer. The options are **Instant Off** and 4 Seconds Override.

Restore on AC Power Loss

Use this item to set the power state after a power outage. Select Stay Off for the system power to remain off after a power outage. Select Power On to turn on the system power after a power outage. Select Last State to allow the system to resume its last power state before a power outage. The options are Power On, Stay Off, and **Last State**.

▶CPU Configuration

This screen displays CPU information as detected by the BIOS. It also allows the user to configure CPU settings.

CPU information: Processor Socket, Processor ID, Processor Frequency, Processor Maximum Ratio, Processor Minimum Ratio, Microcode Revision, L1 Cache RAM, L2 Cache RAM, L3 Cache RAM, Processor 1 Version, and Processor 2 Version.

Clock Spread Spectrum

Select Enable to allow the BIOS to monitor and attempt to reduce the level of Electromagnetic Interference caused by the components whenever needed. The options are **Disable** and Enable.

Hyper-Threading [All]

Select Enable to support Intel's Hyper-threading Technology to enhance CPU performance. The options are **Enable** and Disable.

Cores Enabled

Select the number of cores to enable. To enable all, enter 0 (zero). Maximum is twelve cores.

Execute-Disable Bit (Available if supported by the OS & the CPU)

Select Enable to support Intel® Execute Disable Bit Technology, which will allow the processor to designate areas in the system memory where an application code can be executed and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. This feature is used in conjunction with the items: "Clear MCA," "VMX," "Enable SMX," and "Lock Chipset" for Virtualization media support. The default setting is **Enable**. (Refer to Intel and Microsoft websites for more information.)

PPIN Control

When the Protected Processor Inventory Number (PPIN) is enabled, the processor will return a 64-bit ID number by way of the PPIN MSR. The options are Disable and **Enable.**

Hardware Prefetch (Available when supported by the CPU)

If this item is set to Enable, the hardware will prefetch streams of data and instructions from the main memory to the L2 cache to improve CPU performance. The options are Disable and **Enable**.

Adjacent Cache Prefetch (Available when supported by the CPU)

Select Enable for the CPU to prefetch both cache lines for 128 bytes as comprised. Select Disable for the CPU to prefetch both cache lines for 64 bytes. The options are Disable and **Enable**.

Note: Please reboot the system for changes on this setting to take effect. Please refer to Intel's web site for detailed information.

DCU (Data Cache Unit) Streamer Prefetcher (Available when supported by the CPU)

If this item is set to Enable, the DCU Streamer Prefetcher will prefetch data streams from the cache memory to the DCU (Data Cache Unit) to speed up data accessing and processing for CPU performance enhancement. The options are Disable and **Enable**.

DCU IP Prefetcher

If this feature is set to Enable, the IP prefetcher in the DCU (Data Cache Unit) will prefetch IP addresses to improve network connectivity and system performance. The options are **Enable** and Disable.

Direct Cache Access (DCA)

Select Enable to use Intel DCA (Direct Cache Access) Technology to improve the efficiency of data transferring and accessing. The options are **Enable** and Disable.

X2APIC

This setting allows you to enable or disable the Extended xAPIC mode that supports more than 256 interrupts over the local APIC.

AES-NI (New Encryption Standard-New Instructions)

Select Enable to use the Intel Advanced Encryption Standard (AES) New Instructions (NI) to ensure data security. The options are **Enable** and Disable.

Intel Virtualization Technology

When enabled, a VMM can utilize the addtional hardware capabilities provided by Vanderpool Technology.

▶ Advanced Power Management Configuration

Power Technology

This setting allows you to customize power management. The options are Disabled, **Energy Efficient**, and Custom. Select Energy Efficient to support power-saving mode, which might have an impact on system performance. Select Custom to customize system power settings. Select Disabled to disable power-saving settings.

If the option is set to Custom, the following items will display:

▶ CPU P State Control

EIST (P-states)

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disable and **Enable**.

Turbo Mode

Select Enabled to use the Turbo Mode to boost system performance. The options are **Enable** and Disable.

P-state Coordination

This feature is used to change the P-state (Power-Performance State) coordination type. P-state is also known as "SpeedStep" for Intel processors. Select HW_ALL to change the P-state coordination type for hardware components only. Select SW_ALL to change the P-state coordination type for all software installed in the system. Select SW_ANY to change the P-state coordination type for a software program in the system. The options are **HW_All,** SW_ALL, and SW_ANY.

▶ CPU C State Control (Available when Power Technology is set to Custom)

Package C State limit

Use this item to set the limit on the C-State package register. The options are C0/1 state, C2 state, C6 (non-Retention) state, and **C6 (Retention) state**.

CPU C3 Report

Select Enable to allow the BIOS to report the CPU C3 State (ACPI C2) to the operating system. During the CPU C3 State, the CPU clock generator is turned off. The options are Enable and **Disable.**

CPU C6 Report (Available when Power Technology is set to Custom)

Select Enable to allow the BIOS to report the CPU C6 state (ACPI C3) to the operating system. During the CPU C6 state, power to all cache is turned off. The options are **Enable** and Disable.

Enhanced Halt State (C1E)

Select Enabled to use the "Enhanced Halt State" feature, which will significantly reduce CPU power consumption by reducing the CPU's clock cycle and voltage during a "Halt State." The options are Disable and **Enable**.

▶ CPU T State Control

ACPI (Advanced Configuration Power Interface) T-States

Select Enable to support CPU throttling provided by the operating system to reduce power consumption. The options are **Enable** and Disable.

▶Chipset Configuration

Caution: Setting wrong values may cause the system to malfunction.

▶North Bridge

This section configures the North Bridge settings.

▶IIO Configuration

(Integrated IO)

EV DFX (Device Function On-Hide) Features

When this feature is set to Enable, the EV_DFX Lock Bits that are located on a processor will always remain clear during electric tuning. The options are **Disable** and Enable.

▶IIO1 Configuration

IOU2 (IIO1 PCIe Port 1)

The options are: x4x4 sets Function 1/0 visible, x8 sets function 1 visible, or Auto.

IIO1 Port 1A Link Speed

Select the target link speed. The options are: Gen 1--2.5GT/s, Gen 2--5GT/s, or Gen 3--8GT/s.

IOU0 (IIO1 PCIe Port 2)

Sets the functions that are visible.

IIO1 Port 2A Link Speed

Select the target link speed. The options are 2.5, 5, or 8GT/s.

AOC-2UR6-i4XT SLOT3 Link Speed

Select the target link speed. The options are 2.5, 5, or 8GT/s.

IOU1 (IIO1 PCIe Port 3)

Sets the functions that are visible.

AOC-2UR6-i4XT SLOT2 Link Speed

Select the target link speed. The options are 2.5, 5, or 8GT/s.

▶IIO2 Configuration

IOU2 (IIO2 PCIe Port 1)

The options are: x4x4 sets Function 1/0 visible, x8 sets function 1 visible, or Auto.

IOU0 (IIO2 PCIe Port 2)

Sets the functions that are visible.

RSC-R2UW-4E8 SLOT1 Link Speed

Select the target link speed. The options are: Gen 1--2.5GT/s, Gen 2--5GT/s, or Gen 3--8GT/s.

RSC-R2UW-4E8 SLOT2 Link Speed

Select the target link speed. The options are 2.5, 5, or 8GT/s.

IOU1 (IIO2 PCIe Port 3)

Sets the functions that are visible.

RSC-R2UW-4E8 SLOT3 Link Speed

Select the target link speed. The options are 2.5, 5, or 8GT/s.

RSC-R2UW-4E8 SLOT4 Link Speed

Select the target link speed. The options are 2.5, 5, or 8GT/s.

▶IOAT Configuration

Enable IOAT

Enables or disables Intel I/O Acceleration Technology.

No Snoop

Snooping ensures cache coherency in each DMA engine. Choices are Enable or Disable.

Relaxed Ordering

Enables or disables relaxed ordering for each transaction to main memory in each DMA engine.

▶Intel VT for Directed I/O (VT-d)

Intel VT for Directed I/O

Enable or Disable Intel Virtualization Technology for Directed I/O. This reports the I/O device assignment to VMM through DMAR ACPI tables.

Interrupt Remapping

Interrupt remapping allows VMM to route device interrupts to the VM that controls the device.

▶QPI Configuration ▶QPI General Configuration

(Quick Path Interconnect)

QPI Status

This screen displays the Number of CPUs, Number of IIO, LInk Speed, Current QPI Link Frequency, QPI Global MMIO Low Base/Limit, QPI Global MMIO High Base/Limit, and QPI PCI-E Configuration Base/Siz (Size).

Link Frequency Select

Use this feature to select the desired frequency for QPI Link connections. The options are 6.4GB/s, 8.0GB/s, 9.6GB/s, **Auto,** and Auto Limited.

Link L0p Enable

Select Enable for Link L0p support. The options are **Enable** and Disable.

Link L1 Enable

Select Enable for Link L1 support. The options are **Enable** and Disable.

COD Enable

This setting allows you to cluster on Die mode, which targets NUMA workloads where sharing across Caching Agents is less important than latency. The options are Enable and **Disable**.

Early Snoop

Early Snoop mode is best for workloads with high cache to cache transfers or for workloads that are not fully NUMA optimized. It requires memory population on all channels. The options are Enable, Disable, and **Auto**.

Isoc Mode

Isochronous mode can reduce or increase the credits available for memory traffic. Workstation and HEDT require Isoc enabled for caution and media performance. The options are Enable and **Disable**.

▶Memory Configuration

This section displays the following Integrated Memory Controller (IMC) information.

Enforce POR

Enforces POR restrictions for DDR4 frequency and voltage programming. The options are **Enable** and Disable.

Memory Frequency

Allows you to set the maximum memory frequency below the enforced POR. The options are frequencies from 1333 to 2400 or **Auto**.

Data Scrambling

Data scrambling improves detection of DDR address line errors and reduces the probability of occurrence. The options are Disabled, Enabled and **Auto**.

DRAM RAPL Baseline

You can control the DRAM power by limiting memory bandwidth. The options are DRAM RAPL Mode 0, DRAM RAPL Mode 1, and Disable.

Set Throttling Mode

You can utilize the thermal sensors on the DIMMs to derive DRAM temperature estimation for throttling. The options are **CLTT** and Disable.

Socket Interleave Below 4GB

When enabled, this setting splits the 1-4GB address space between two sockets so that both get a chunk of local memory below 4GB. The options are Enable and **Disable.**

A7 Mode

A7 (Addressing) mode is recommended for most platform topologies as it is expected to yield slightly higher memory bandwidth. The options are Enable and **Disable.**

▶DIMM Information

Select this screen to view specification for your DIMMs

▶Memory RAS Configuration

Memory RAS Configuration Setup

RAS Mode

Select the mode for memory initialization. For Mirror, writes are sent to both channels for redundancy. For Lockstep, adjacent channels must be populated identically. Or this function may be **Disabled**.

Memory Rank Sparing

Memory rank sparing enhances system performance. The options are Disable and Enable.

Patrol Scrub

This feature proactively searches the system memory repairing correctable errors. The options are Disable and **Enable**.

Patrol Scrub Interval

Select the number of hours (1-**24**) required to complete a full scrub. A value of zero designate Auto.

Demand Scrub

Demand Scrubbing allows the CPU to correct memory errors found on a memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error, the error is corrected and sent to the requestor (the original source). Memory is updated as well. Select Enable to use Demand Scrubbing for ECC memory correction. The options are **Enable** and Disable.

Device Tagging

Select Enable to support device tagging of a memory device that generates stuck-bit or hard errors The options are **Disable** and Enable.

▶South Bridge

This section configures the South Bridge settings. The initial screen displays USB information including the USB Module version and the USB devices.

Legacy USB Support

Available when USB Function is not Disabled. Select **Enabled** to support legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disabled to have USB devices available for EFI (Extensive Firmware Interface) applications only. The settings are Disabled, **Enabled** and Auto.

XHCI Hand-Off

This feature is a work-around solution for operating systems that do not support XHCI (Extensible Host Controller Interface) hand-off. The XHCI ownership change should be claimed by the XHCI driver. The settings are Enabled and Disabled.

EHCI Hand-Off

This item is for operating systems that do not support Enhanced Host Controller Interface (EHCI) hand-off. When this item is enabled, EHCI ownership change will be claimed by the EHCI driver. The settings are Enabled and **Disabled**.

Port 60/64 Emulation

This feature allows I/O port 60h/64h emulation. It should be Enabled for operating systems that are not USB aware to provide a complete USB keyboard support. The settings are Enabled and **Disabled**.

U**SB 3.0 Support**

For USB 3.0 support. The options are:

- **Disabled**: Force to EHCI mode only
- Auto: Recommended when XHCI Pre-Boot Driver is set to Disabled
- Enabled or Smart Auto: Recommended when XHCI Pre-Boot Driver is set to Enabled.

EHCI1

Controls the USB 2.0 EHCI functions. On EHCI controller must be Enabled.

EHCI2

Controls the USB 2.0 EHCI functions. On EHCI controller must be Enabled.

XHCI Pre-Boot Driver

Enable this feature to load the Intel XHCI pre-boot driver. The settings are **Enabled** and Disabled.

▶SATA Configuration

When this submenu is selected, the BIOS automatically detects the presence of the SATA devices that are supported by the Intel PCH chip and displays the following items:

SATA Controller

This item enables or disables the onboard SATA controller supported by the Intel PCH chip. The options are **Enabled** and Disabled.

Configure SATA as

Select the SATA configuration. The options are IDE, **AHCI**, and RAID. The items below differ depending on this choice.

If SATA is configured as IDE:

The SATA ports are listed. For each, you can identify whether the port is connected to a hard drive or a solid state drive.

If SATA is configured as AHCI, the following items are displayed:

The SATA ports are listed.

Support Aggressive Link Power Management

When this item is set to Enabled, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enabled** and Disabled.

SATA Port 0~ Port 5

This item displays the information detected on the installed SATA drive on the particular SATA port, including the model number of the drive, capacity, and the Software Preserve Support.

Port 0 ~ Port 5 Spin Up Device

Only devices for which this is Enabled will spin up at boot. The options are Enabled and **Disabled**. If no devices are Enabled, all will spin up at boot.

Port 0 ~ Port 5 SATA Device Type

For each port, you can identify whether it is connected to a hard drive or a solid state drive.

If SATA is configured as RAID, the following items are displayed:

The SATA ports are listed.

Support Aggressive Link Power Management

When this item is set to Enabled, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enabled** and Disabled.

SATA RAID Option ROM/UEFI Driver

Select which SATA RAID firmware type to load. The options are Disabled, EFI, and Legacy.

SATA/sSATA RAID Boot Select

Select the boot capability for SATA or SATA RAID controllers. This is shared and presented in the SATA Configuration page and the sSATA Configuration page. The options are SATA Controller, **sSATA Controller** and Both. (**Note**: The Both option cannot support Windows Server 2012 r2 installation.)

SATA Port 0~ Port 5

This item displays the information detected on the installed SATA drive on the particular SATA port, including the model number of the drive, capacity, and the Software Preserve Support.

Port 0 ~ Port 5 Spin Up Device

Only devices for which this is Enabled will spin up at boot. The options are Enabled and **Disabled**. If no devices are Enabled, all will spin up at boot.

Port 0 ~ Port 5 SATA Device Type

For each port, you can identify whether it is connected to a hard drive or a solid state drive.

▶sSATA Configuration

When this submenu is selected, the BIOS automatically detects the presence of the sSATA devices that are supported by the Intel PCH chip and displays the following items:

SATA Controller

This item enables or disables the onboard SATA controller supported by the Intel PCH chip. The options are **Enabled** and Disabled.

Configure sSATA as

Select the sSATA configuration. The options are IDE, **AHCI**, and RAID. The items below differ depending on this choice.

If sSATA is configured as IDE:

The sSATA ports are listed. For each, you can identify whether the port is connected to a hard drive or a solid state drive.

If sSATA is configured as AHCI:

The sSATA ports are listed.

Support Aggressive Link Power Management

When this item is set to Enabled, the sSATA AHCI controller manages the power usage of the sSATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enabled** and Disabled.

sSATA Port 0~ Port 5

This item displays the information detected on the installed SATA drive on the particular SATA port, including the model number of the drive, capacity, and the Software Preserve Support.

Port 0 ~ Port 5 Spin Up Device

Only devices for which this is Enabled will spin up at boot. The options are Enabled and **Disabled**. If no devices are Enabled, all will spin up at boot.

Port 0 ~ Port 5 SATA Device Type

For each port, you can identify whether it is connected to a hard drive or a solid state drive.

If sSATA is configured as RAID:

The sSATA ports are listed.

Support Aggressive Link Power Management

When this item is set to Enabled, the sSATA AHCI controller manages the power usage of the sSATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are **Enabled** and Disabled.

sSATA RAID Option ROM/UEFI Driver

Select which SATA RAID firmware type to load. The options are Disabled, EFI, and Legacy.

SATA/sSATA RAID Boot Select

Select the boot capability for SATA or SATA RAID controllers. This is shared and presented in the SATA Configuration page and the sSATA Configuration page. The options are SATA Controller, **sSATA Controller** and Both. (**Note**: The Both option cannot support Windows Server 2012 r2 installation.)

sSATA Port 0~ Port 3

This item displays the information detected on the installed SATA drive on the particular SATA port, including the model number of the drive, capacity, and the Software Preserve Support.

sSATA Port 0 ~ Port 3 Spin Up Device

Only devices for which this is Enabled will spin up at boot. The options are Enabled and **Disabled**. If no devices are Enabled, all will spin up at boot.

Port 0 ~ Port 3 sSATA Device Type

For each port, you can identify whether it is connected to a hard drive or a solid state drive.

▶Server ME Configuration

This screen displays the Management Engine configuration information, including Operational Firmware Version, Recovery Firmware Version, ME Firmware Features, ME Firmware Status #1, ME Firmware Status #2, Current State, Error Code.

No settings are configurable.

▶PCIe/PCI/PnP Configuration

PCI PERR/SERR Support

Choose whether to allow a PCI/PCI-E device to generate a PCI/PCI-E Parity-Error (PERR) number or a System-Error (SERR) number for a PCI Bus Signal Error Event. The options are Enabled and **Disabled**.

Above 4G Decoding (Available if the system supports 64-bit PCI decoding)

Choose to allow decoding a PCI device that supports 64-bit in the space above 4G Address. The options are Enabled and **Disabled**.

SR-IOV Support

If the system has PCI-E devices that supports Single Root IO Virtualization (SR-IOV), choose to Enable or **Disable** it.

Maximum Payload

Select Auto to allow the system BIOS to automatically set the maximum payload value for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes.

Maximum Read Request

Select Auto to allow the system BIOS to automatically set the maximum Read Request size for a PCI-E device to enhance system performance. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

ASPM Support

This feature allows the user to set the Active State Power Management (ASPM) level for a PCI-E device. Select Auto to allow the system BIOS to automatically set the ASPM level for the system. Select Disabled to disable ASPM support. The options are **Disabled** and Auto.

Warning: Enabling ASPM support may cause some PCI-E devices to fail!

MMIOHBase

Set the MMIO base address above 4G decoding. The options are **56T(**Bytes), 48T, 24T. 512G, or 256G.

MMIO High Size

Set the MMIO size above 4G decoding. The options are **256G(**Bytes), 128G, 512G, 1024G.

AOC-2UR6-i4XT SLOT3 PCI-E X8 OPROM

AOC-2UR6-i4XT SLOT2 PCI-E X16 OPROM

RSC-R2UW-4E8 SLOT(1-4) PCI-E X8 OPROM

RSC-R1UW-E87 SLOT1 PCI-E X8 OPROM

For PCI add-on cards and riser cards, select the type of firmware to load for add-on cards in this slot. The options are EFI, **Legacy**, and Disabled.

Onboard LAN Option ROM Type

Select which type of firmware to load for onboard LANs Option ROM for system boot. The options are EFI and **Legacy**.

Onboard LAN1 Option ROM

Select which firmware function to load for the onboard LAN1. Choose iSCSI to use the iSCSI Option ROM to boot the computer using an iSCSI network device.

Select PXE (Preboot Execution Environment) to use a PXE Option ROM to boot the computer using a PXE network device. The options for Onboard LAN 1 are **PXE** , iSCSI, FCoE, and **Disabled.**

Onboard LAN(2-4) Option ROM

(Available only if you choose PXE or Disable for LAN1) Choose whether to allow PXE firmware for LAN2, LAN3, and LAN4. Options are PXE and Disable.

Onboard Video Option ROM

This feature controls how the system executes UEFI (Unified Extensible Firmware Interface), and legacy Option ROM. Select Legacy only to boot the system using a legacy video device. The options are Disabled, **Legacy,** and EFI.

VGA Priority

This feature allows the user to select the graphics adapter to be used as the primary boot device. The options are **Onboard**, and Offboard.

Network Stack

When this feature is set to Enabled, both PXE (Preboot Execution Environment) and UEFI (Unified Extensible Firmware Interface) will be enabled for network stack support. The options are Enabled and **Disabled**.

▶Super IO Configuration

Super IO Chip

This item displays the Super IO chip used in the motherboard.

▶Serial Port 1 (or 2) Configuration

Serial Port

Select Enabled to enable a serial port specified by the user. The options are **Enabled** and Disabled.

Change Port Settings

This option specifies the base I/O port address and the Interrupt Request address of Serial Port 1 (COM). Select Disabled to prevent the serial port from accessing any system resources. When this option is set to Disabled, the serial port becomes unavailable. The options are **Auto**, IO=3F8h; IRQ=4; IO=3F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2F8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=3E8h; IRQ=3, 4, 5, 6, 7, 10, 11, 12; IO=2E8h; IRQ=IRQ=3, 4, 5, 6, 7, 10, 11, 12.

▶Serial Port Console Redirection

Configure settings for serial ports.

COM 1 Console Redirection

Allows you to Enable or **Disable** console redirection. If you Enable, you can configure the Console Redirection Settings menu.

SOL/COM2 Console Redirection

Allows you to **Enable** or Disable console redirection. If you Enable, you can configure the Console Redirection Settings menu.

▶Console Redirection Settings

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

Terminal Type

This feature allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are **ANSI**, VT100, VT100+, and VT-UTF8.

Bits Per second

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 Bits and **8 Bits**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with

the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

This feature allows the user to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are **Enabled** and Disabled**.**

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Legacy OS Redirection Resolution

Use this feature to select the number of rows and columns used in Console Redirection for legacy OS support. The options are **80x24** and 80x25.

Putty KeyPad

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

Redirection After BIOS Post

Use this feature to enable or disable legacy console redirection after BIOS POST. When set to Bootloader, legacy console redirection is disabled before booting the OS. When set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

▶Legacy Console Redirection Settings

Legacy Console Redirection Port

Choose a COM port to display redirection of legacy OS and legacy OPROM messages. The options are **COM1** or SOL/COM2.

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

EMS Console Redirection

Select Enabled to use a COM Port selected by the user for Console Redirection. The options are Enabled and **Disabled**.

▶Console Redirection Settings (for EMS)

The submenu allows the user to configure Console Redirection settings to support Out-of-Band Serial Port management. The settings specify how the host computer will exchange data with the remote computer (used by the user). Both computers should have the same or compatible settings.

Out-of-Band Management Port

The setting selects a serial port used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote server. The options are **COM1 Console Redirection** and COM2/SOL Console Redirection.

Terminal Type

This setting allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII character set. Select VT100+ to add color and function key support. Select ANSI to use the extended ASCII character set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, VT100+, and **VT-UTF8**.

Bits Per Second

This item sets the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600, and **115200** (bits per second).

Flow Control

This item allows the user to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending

data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None,** Hardware RTS/CTS, and Software Xon/Xoff.

Data Bits, Parity, Stop Bits

The setting for each of these features is displayed.

▶ ACPI Settings

Use this feature to configure Advanced Configuration and Power Interface (ACPI) power management settings for your system.

WHEA Support

This item enables Windows Hardware Error Architecture to help determine the root cause of hardware errors. The options are **Enabled** and Disabled.

High Precision Event Timer

This setting allows you to activate the High Precision Event Timer that produces periodic interrupts at a much higher frequency than a real-time clock does in synchronizing multimedia streams, providing smooth playback, reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Precision Event Timer is used to replace the 8254 Programmable Interval Timer. The options are **Enabled** and Disabled.

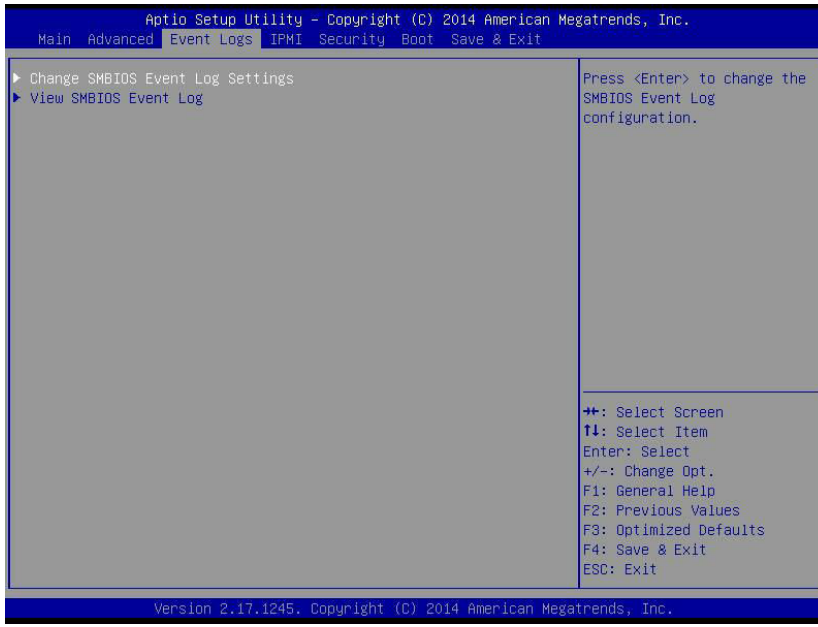
NUMA (NON-Uniform Memory Access)

This feature enables the Non-Uniform Memory Access ACPI support. The options are **Enabled** and Disabled.

PCI AER Support

This setting allows the ACPI OS to natively manage PCI Advanced Error Reporting. Options are **Disabled** and Enabled.

7-4 Event Logs


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
Change SMBIOS Event Log Settings
View SMBIOS Event Log
Press <Enter> to change the SMBIOS Event Log configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1245. Copyright (C) 2014 American Megatrends, Inc.

Select the Event Logs tab to access the following submenu items.

▶Change SMBIOS Event Log Settings

Note that any changes made here do not take effect until a reboot.

Enabling/Disabling Options

SMBIOS Event Log

Change this item to enable or disable all features of the SMBIOS Event Logging during boot. The options are **Enabled** and Disabled.

Runtime Error Logging Support

Change this item to enable or disable runtime error logging. The options are **Enabled** and Disabled.

Memory Corrected Error Enabling

This item allows you to enable the runtime event for memory correctable errors. The options are **Enabled** and Disabled.

Memory Correction Error Threshold

Change this item to define the system's memory correction error threshold. Directly enter a numeric value between 1 and 32767. The default value is **10**.

Turn off Memory Error LED

This item allows you to turn off the Memory Error alert LED. the options are "Do Nothing" (that is, leave the LED on) or "Yes, Next reset" (that is, turn off the LED upon the next reboot).

PCI-Ex Error Enable

This item allows you to enable runtime event for PCI-Express error logging. The options are Yes or No.

Erasing Settings

Erase Event Log

This option erases all SMBIOIS logged events. The options are **No**, "Yes, Next reset," and "Yes, Every reset."

When Log is Full

Choose an action in the event that SMBIOS Event Log is full. The options are **Do Nothing** and Erase Immediately.

SMBIOS Event Log Standard Settings

Log System Boot Event

Choose whether to log system boot events. The options are **Disabled** and Enabled.

MECI

The Multiple Event Count Increment (MECI) counter counts the number of occurences a duplicate event must happen before the MECI counter is incremented. This is a numeric value ranging from 1 to 255. The default value is **1**.

METW

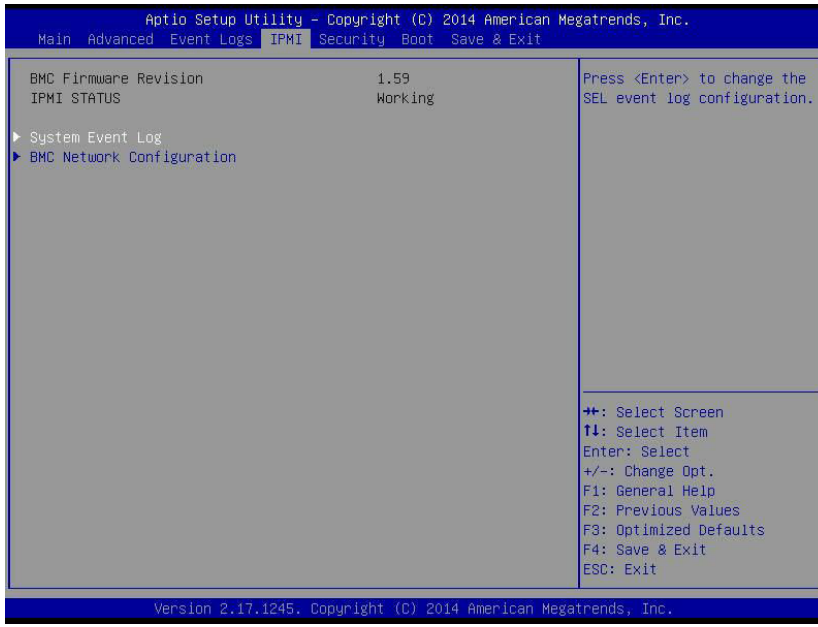
The Multiple Event Time Window (METW) defines number of minutes that must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99. The default value is **60**.

▶View SMBIOS Event Log

This item allows the user to view the event in the SMBIOS event log. Select this item and press <Enter> to view the status of an event in the log. The following categories are displayed:

Date/Time/Error Code/Severity

7-5 IPMI


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
BMC Firmware Revision 1.59
IPMI STATUS Working
System Event Log
BMC Network Configuration
Press <Enter> to change the SEL event log configuration.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1245. Copyright (C) 2014 American Megatrends, Inc.

Select the IPMI (Intelligent Platform Management Interface) tab to access information and settings. The screen displays the BMC firmware revision number and the IPMI status.

▶System Event Log

Enabling/Disabling Options

SEL Components

Select Enabled for all system event logging at bootup. The options are **Enabled** and Disabled.

Erasing Settings

Erase SEL

Select 'Yes, On next reset' to erase all system event logs upon next system reboot. Select 'Yes, On every reset' to erase all system event logs upon each system reboot. Select No to keep all system event logs after each system reboot. The options are **No**, "Yes, On next reset," and "Yes, On every reset."

When SEL is Full

This feature allows the user to decide what the BIOS should do when the system event log is full. Select "Erase Immediately" to erase all events in the log when the system event log is full. The options are **Do Nothing** and Erase Immediately.

▶BMC Network Configuration

IPMI LAN Selection: This item displays the available IPMI LAN modes.

IPMI Network Link Status: This item displays the IPMI Network Link status.

Update IPMI LAN Configuration

This item allows the user to set whether the BIOS should configure the IPMI settings at next system boot. The options are **No** and Yes. If the option is set to Yes, the user is allowed to configure the following IPMI settings at next system boot:

Configuration Address Source

This item allows the user to select the source of the IP address for IPMI. The options are Static and **DHCP**.

If the Address Source is set to DHCP, the following information is displayed and not configurable. If the Address Source is set to Static, the Station IP Address, Subnet Mask, and IP Gateway IP Address can be configured. You must gather these parameters from your network administrator and enter them manually.

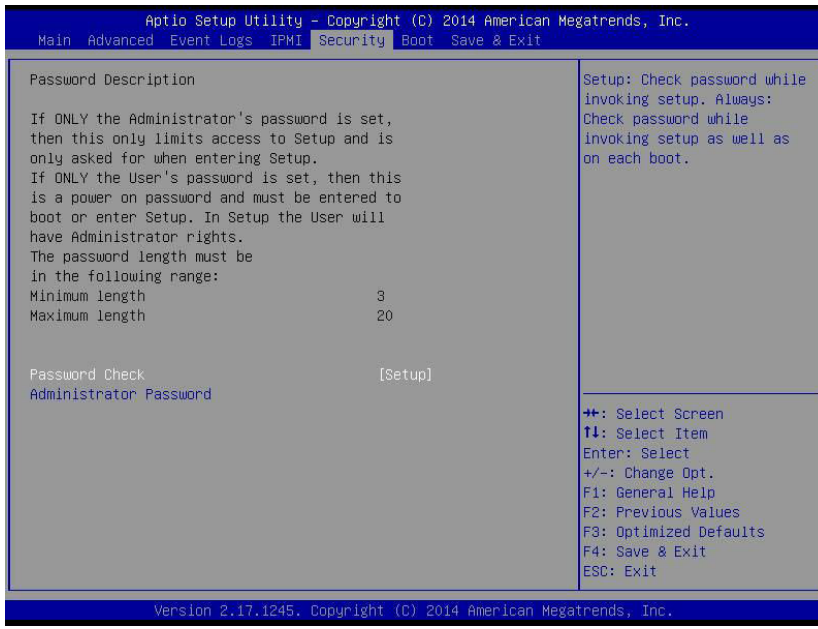
Station IP Address: In dotted quad form, for example 192.168.10.253

Subnet Mask: In dotted quad form, for example 255.255.0.0

Station MAC Address: Six two digit hexidecimal pairs, for example 1a.34.5e.b8.65.37.

Gateway IP Address: In dotted quad form, for example 192.168.0.1

7-6 Security


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
Password Description
If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup.
If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights.
The password length must be in the following range:
Minimum length 3
Maximum length 20
Password Check [Setup]
Administrator Password
Setup: Check password while invoking setup. Always: Check password while invoking setup as well as on each boot.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1245. Copyright (C) 2014 American Megatrends, Inc.

This menu allows the user to configure the following security settings for the system.

Password Check

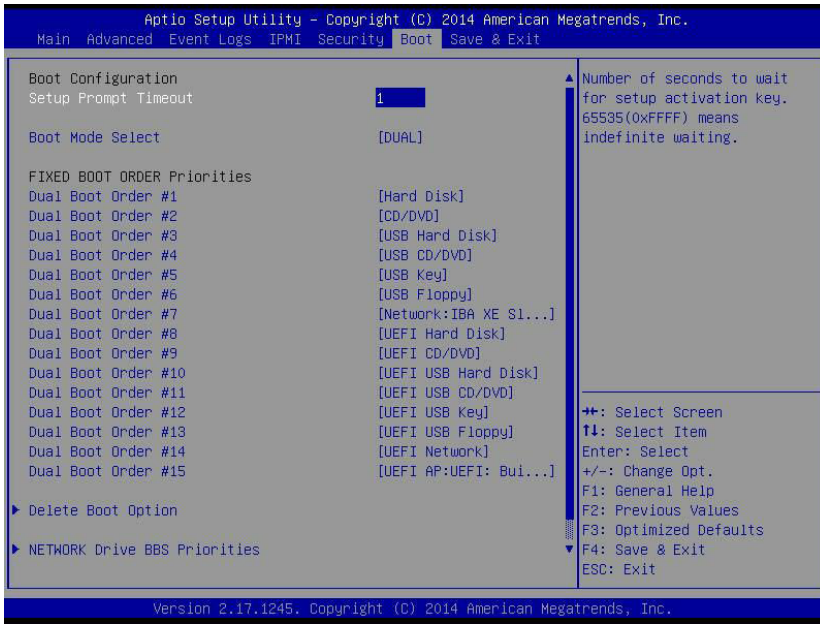
This item allows you to decide when the system should check for a password. The options are **Setup** and Always.

Select Setup for the system to prompt for a password before the user enters the BIOS Setup utility. Select Always for the system to prompt for a password upon each system boot and before the user enters the Setup utility.

Administrator Password

Use this feature to set the Administrator Password which is required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

7-7 Boot



This submenu allows the user to configure the following boot settings for the system.

Setup Prompt Timeout

Set the number of seconds to wait for the setup activation key. Enter 65535 (0xFFFF) to wait indefinitely.

Boot Mode Select

Select which boot device type to list below. The options are Legacy, UEFI, and **Dual**.

Fixed Boot Order Priorities

This option prioritizes the order of devices from which the system will boot. Select each entry in the list to choose a boot device.

- For Dual, devices are listed in boot order #1 through #15.
- For Legacy, devices are listed in boot order #1 through #7.
- For UEFI, devices are listed in boot order #1 through #8.

▶Delete Boot Option

Use this item to select a boot device to delete from the boot priority list.

Delete Boot Option

Select a boot device to delete.

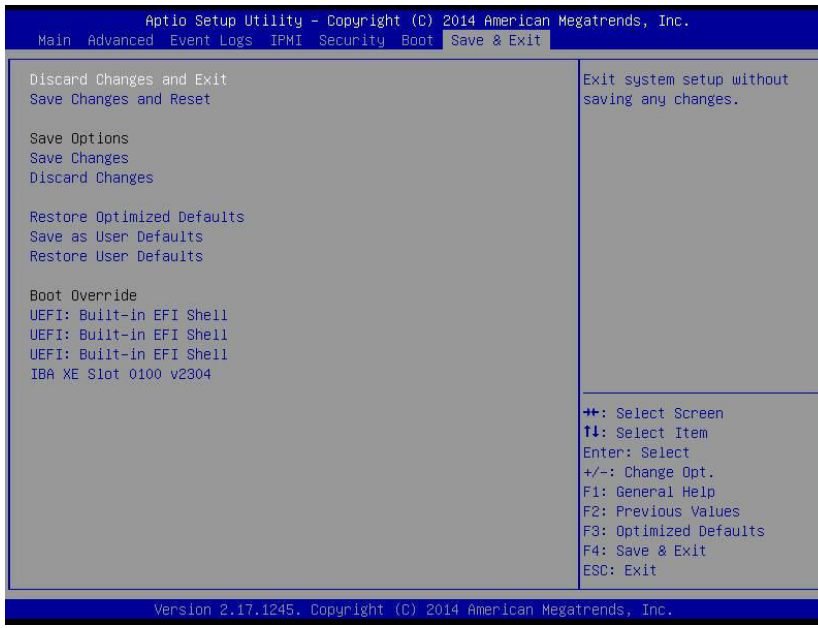
▶Network Drive BBS Priorities (Available when a device is installed in this drive)

This submenu sets the boot priority sequence from available network drives.

▶UEFI Application Boot Priorities

This submenu sets the boot priority sequence from available UEFI applications. (Not available when Legacy is selected.)

7-8 Save & Exit


Aptio Setup Utility – Copyright (C) 2014 American Megatrends, Inc.
Main Advanced Event Logs IPMI Security Boot Save & Exit
Discard Changes and Exit
Save Changes and Reset
Save Options
Save Changes
Discard Changes
Restore Optimized Defaults
Save as User Defaults
Restore User Defaults
Boot Override
UEFI: Built-in EFI Shell
UEFI: Built-in EFI Shell
UEFI: Built-in EFI Shell
IBA XE Slot 0100 v2304
Exit system setup without saving any changes.
→←: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit
Version 2.17.1245. Copyright (C) 2014 American Megatrends, Inc.

Use this page to configure the Save & Exit settings for setup.

Discard Changes and Exit

Select this option to quit the BIOS setup without making any changes to the system configuration. Select Discard Changes and Exit, and press <Enter>. When the dialog box appears, asking you if you want to exit the BIOS setup without saving, select **Yes** to quit BIOS without saving the changes.

Save Changes and Reset

When completing the system configuration changes, select this option to save the changes and reboot the computer so that the new system configuration settings can take effect.

Save Options

Save Changes

Select this option and press <Enter> to save all changes you've done so far and return to the AMI BIOS utility Program. When the dialog box appears, asking you if you want to save configuration, select **Yes** to save the changes, or select No to return to the BIOS without making changes.

Discard Changes

Select this option and press <Enter> to discard all the changes and return to the BIOS setup. When the dialog box appears, asking you if you want to load previous values, select **Yes** to keep the previous values, or select No to keep the changes you've made so far.

Restore Optimized Defaults

Select this option to load the optimized default settings. When the dialog box appears, asking you if you want to load optimized defaults, select **Yes** to load the optimized default settings, or select No to keep the defaults previously saved as the user defaults.

Save as User Defaults

Select this option to save the current settings as the user's defaults. When the dialog box appears, asking you if you want to save values as user's defaults, select **Yes** to save the current values as user's default settings, or select No to keep the defaults previously saved as the user's defaults.

Restore User Defaults

Select this option to load the user's defaults previously saved in the system. When the dialog box appears, asking you if you want to restore user's defaults, select **Yes** to restore the user's defaults previously saved in the system, or select No to keep the changes you've made so far.

Boot Override

This optoin allows you to override the Boot Option Priorities setting in the Boot menu, and instead immediately boot the system with one of the listed devices. This is a one-time override. Select and confirm.

Appendix A

BIOS Error Beep Codes

During the POST (Power-On Self-Test) routines, which are performed at each system boot, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue to boot. The error messages normally appear on the screen.

Fatal errors will not allow the system to continue with the bootup procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list correspond to the number of beeps for the corresponding error.

X10 Serverboard BIOS Error Beep Codes

Beep Code/LED	Error Message	Description
1 beep	Refresh	Ready to boot
5 short beeps + 1 long beep	Memory error	No memory detected in the system
5 beeps	No Con-In or No Con-Out devices	Con-In includes USB or PS/2 keyboard, PCI or Serial Console Redirection, IPMI KVM or SOL. Con-Out includes Video Controller, PCI or Serial Console Redirection, IPMI SOL.
1 beep per device	Refresh	1 beep or each USB device detected
X10 IPMI Error Codes		
1 Continuous Beep	System OH	System Overheat

Notes

Appendix B

System Specifications

Processors

Single or dual Intel E5-2600v3 Series processors in LGA2011 sockets

Note: Please refer to our web site for a complete listing of supported processors.

Chipset

Intel PCH C612 chipset

BIOS

16 MB AMI SPI Flash EEPROM

Memory Capacity

Twenty-four DIMM sockets supporting up to 768 GB of ECC registered DDR4-1600/1333/1066/800 non-volatile RDIMM (Registered DIMMs) or 1536 GB of LRDIMM (Load-Reduced DIMMs) DDR4-2133/1866/1600/1333 memory

Note: See the memory section in Chapter 5 for details.

SATA Controller

Ten SATA 3.0 ports; six ports supported by the Intel PCH and four ports supported by the Intel SCU (RAID 0, 1, 5 and 10 are supported by LSI Software RAID)

Drive Bays

Twelve hot-swap drive bays to house 3.5" hard drives

Expansion Slots

One PCI-E 3.0 x16 and two PCI-E 3.0 x8 cards (w/ RSC-R2UW+-2E16-2E8-O-P riser) and two low-profile PCI-E 3.0 x8 cards (w/ RSC-R2UW-E8R-O-P riser)

Serverboard

X10DRU-i+ (Proprietary form factor)

Dimensions: 17 x 16.8 in (431.8 x 426.7 mm)

Chassis

SC829UAC(4)-R1K02 (2U rackmount)

Dimensions: (WxHxD) 17.2 x 3.5 x 27.75 in. (437 x 89 x 705 mm)

Weight

Gross Weight: 55 lbs. (25 kg.)

System Cooling

Four 8-cm high-performance fans

System Input Requirements

AC Input Voltage: 100 - 240V AC auto-range

Rated Input Current: 13 - 4A max

Rated Input Frequency: 50 to 60 Hz

Power Supply

Rated Output Power: 1 KW (Part# PWS-1K02A-1R)

Rated Output Voltages:

+12V Max: 62.5A & Min: 0A (100Vac-127Vac), Max: 83A (200Vac-240Vac)

+12V Standby: Max: 2.1A

Operating Environment

Operating Temperature: 10ºC to 35ºC (50ºF to 95ºF)

Expanded Operating Temperature: 5°C to 40°C (41°F to 104°F) [1, 2]

Non-Operating Temperature: -40ºC to 60ºC (-40ºF to 140ºF)

Operating Relative Humidity: 8% to 90% (non-condensing)

Non-Operating Relative Humidity: 5% to 95% (non-condensing)

Note 1: When operating in the expanded temperature range, system performance is equivalent to the normal operating temperature range.

Note 2: When operating in the expanded temperature range, select a CPU for which the TDP is between 85 W to 145 W. Do not use frequency optimized SKUs, E5-2667 v3, E5-2643 v3, E5-2637 v3, and E5-2623 v3.

Regulatory Compliance

Electromagnetic Emissions: FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. “Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate”

(continued from front)

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